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CATALOG

OF THE

NEW HAMPSHIRE COLLEGE

OF

Agriculture and the Mechanic Arts

DURHAM, NEW HAMPSHIRE

1907-1908

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CONCORD, N. H.

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CALENDAR.

1907.

JULY.

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COLLEGE CALENDAR.

1907.

Sept.	3–4.	Examinations for admission begin Tuesday at 9 a. m.
Sept.	4.	Registration day. First term begins Wednesday.
Oct.	9.	Stated meeting of Trustees.
Dec.	20.	First term ends Friday night.

WINTER VACATION.

1908.

Jan.	7.	Registration day. Second term begins Tuesday.
Jan.	8.	Stated meeting of the Trustees.
March	13.	Second term ends Friday night.

SPRING VACATION.

March	24.	Registration day. Third term begins Tuesday.
April	8.	Stated meeting of Trustees.
May	26.	Senior examinations completed, 4 p. m.
May	31.	Baccalaureate sermon, Sunday at 10.45 a. m.
June	1.	Prize Drill, 8 p. m., in the Armory.
June	2.	Class Day. Stated meeting of Trustees. Concert at 8 p. m. in Thompson Hall.
June	3.	Commencement Day, Wednesday.

SUMMER VACATION.

1908.

Sept.	15–16.	Examinations for admission begin Tuesday at 9 a. m.

Sept.	16.	Registration day. First semester begins Wednesday.
Oct.	7.	Stated meeting of Trustees.
Dec.	18.	College closes Friday night.

CHRISTMAS VACATION.

1909.		
Jan.	5.	College opens Tuesday.
Feb.	1–5.	Mid-year examinations.

WINTER VACATION.

Feb.	10.	Registration day. Second semester begins Wednesday.

BOARD OF TRUSTEES.

His Excellency, Gov. CHARLES M. FLOYD, *ex officio.*

CHARLES W. STONE, A. M., East Andover, *President.*

Pres. WILLIAM D. GIBBS, Durham, *ex officio.*

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Hon. WARREN BROWN, Hampton Falls.

Hon. ROSECRANS W. PILLSBURY, Londonderry.

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WALTER DREW, Colebrook.

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GEORGE W. CURRIER, M. D., Nashua.

WALTER M. PARKER, A. B., Manchester, *Treasurer.*

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WILLIAM D. GIBBS, M. S., *President of the College.*

CHARLES H. PETTEE, A. M., C. E., *Dean and Professor of Mathematics and Civil Engineering.*

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FRED W. MORSE, M. S., *Professor of Organic Chemistry.*

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HARRY F. HALL, B. S., *Professor of Horticulture.*

FREDERICK W. PUTNAM, B. S., *Professor of Drawing and Design.*

RICHARD WHORISKEY, JR., A. B., *Associate Professor of Modern Languages.*

CHARLES BROOKS, A. M., *Associate Professor of Botany.*

C. H. HARRISON, A. B., B. D., *Associate Professor of English and Philosophy, Secretary of the Faculty.*

FRED RASMUSSEN, B. S. A., *Associate Professor of Dairying.*

CHARLES JAMES, F. I. C., *Assistant Professor of Inorganic Chemistry.*

WILLIAM H. PEW, B. Sc. (Agr.), *Assistant Professor of Animal Husbandry.*

SAMUEL T. ADAMS, B. S., *Assistant Professor of Physics and Electrical Engineering.*

FRANK R. BROWN, B. S., *Instructor in Machine Work.*

DAVID L. RANDALL, PH. D., *Instructor in Chemistry.*

RAY A. SPENCER, A. B., *Instructor in English and Modern Languages.*

HARRY E. INGHAM, B. S., *Instructor in Wood Work.*

THOMAS J. LATON, B. S., *Instructor in Drawing.*

CHARLES S. SPOONER, A. B., *Instructor in Entomology.*

JOHN CLYDE WILCOX, B. S., *Instructor in Horticulture.*

CHARLES P. COOPER, M. E. in E. E., *Assistant in Mathematics and Electrical Engineering.*

WILLIAM M. BARROWS, B. S., S. B., S. M., *Assistant in Zoology.*

*CLARENCE FOWLER, *Foreman of Gardens and Greenhouse.*

DAVID LUMSDEN, *Foreman of Gardens and Greenhouse.*

GEORGE S. HAM, *Farm Foreman.*

MABEL E. TOWNSEND, A. B., *Registrar.*

GERTRUDE WHITTEMORE, PH. B., *Librarian.*

CHARLOTTE A. THOMPSON, *Assistant Librarian.*

EXECUTIVE OFFICE.

EDITH M. DAVIS, *Purchasing Agent.*

NELLIE F. WHITEHEAD, *Bookkeeper.*

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

*Resigned Nov., 1907.

AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL.

Hon. JOHN G. TALLANT, *Chairman,* Pembroke
CHARLES W. STONE, A. M., *Secretary,* East Andover
Hon. WARREN BROWN, Hampton Falls
Hon. N. J. BACHELDER, A. M., M. S., East Andover
Pres. WILLIAM D. GIBBS, *ex officio,* Durham

STATION COUNCIL.

E. DWIGHT SANDERSON, B. S., B. S. A., *Director and Entomologist.*
FRED W. MORSE, M. S., *Vice-Director and Chemist.*
FREDERICK W. TAYLOR, B. Sc. (Agr.), *Agriculturist.*
HARRY F. HALL, B. S., *Horticulturist.*
CHARLES BROOKS, A. M., *Botanist.*
FRED RASMUSSEN, B. S. A., *Dairyman.*
WILLIAM H. PEW, B. Sc. (Agr.), *Animal Husbandman.*
BERT F. CURRY, M. S., *Associate Chemist.*
JASPER F. EASTMAN, B. S., *Assistant Agriculturist.*
CHARLES S. SPOONER, A. B., *Assistant Entomologist.*
JOHN CLYDE WILCOX, B. S., *Assistant Horticulturist.*
GEORGE S. HAM, *Farm Foreman.*
*CLARENCE FOWLER, *Foreman of Gardens and Greenhouse.*
DAVID LUMSDEN, *Foreman of Gardens and Greenhouse.*
EDITH M. DAVIS, *Purchasing Agent.*
MABEL M. MEHAFFEY, *Stenographer.*
NELLIE F. WHITEHEAD, *Bookkeeper.*
MABEL E. TOWNSEND, A. B., *Librarian.*

*Resigned Nov., 1907.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *c e*—Electrical Engineering; *u*—Unclassified. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

SENIORS.

Name.	Residence.	Room.
Adams, Waldo Lawrence *c*	*Townsend, Mass.*	Mrs. Sanders'.
Barton, Arthur Hosea *e e*	*Newport.*	Thompson Hall.
Batchelder, Arthur Milliken *c e*	*Suncook.*	Kappa Sigma House.
Buss, Minot Giles *e e*	*Wilton.*	Kappa Sigma House.
Carlisle, Lawrence Andrew *a*	*Exeter.*	Delta Hall.
Chesley, Mary Abbie *g*	*Lee.*	Lee.
Clough, Frances *e e*	*Contoocook.*	Kappa Sigma House.
Cone, Charles Francis *e e*	*Nashua.*	Zeta House.
Cory, Merton M. *e e*	*Nashua.*	Pettee Block.
Croghan, John Timothy *m e*	*Concord,*	Kappa Sigma House.
DeMeritt, Katharine *g*	*Durham.*	Mr. A. DeMeritt's.
Evans, Walter Woods *c*	*East Kingston.*	Delta Hall.
Farwell, Oren Lovell *a*	*Harrisville.*	Delta Hall.
French Harry Fifield *c*	*Plymouth.*	Kappa Sigma House.
Hill, Stanley Fisk *u*	*Nashua.*	Delta Hall.
Kirkpatrick, William R. *m e*	*Nashua.*	Delta Hall.
Page, John Caleb *g*	*Dover.*	Nesmith Hall.
Perley, George Arthur *c*	*Goffstown.*	Prof. Pettee's.
Pettee, Sarah Elizabeth *g*	*Durham.*	Prof. Pettee's.
Sanborn, Moses Herman *a*	*Fremont.*	Zeta House.
Smalley, Dean Fred *m e*	*Walpole.*	Delta Hall.
Tarbell, Carl Brown *m e*	*Milton.*	Kappa Sigma House.
Wadleigh, Ray Emery *m e*	*Hampton Falls.*	Kappa Sigma House.
Waite, George Lyman *a*	*Dunbarton.*	Zeta House.
Walker, Harold Duncan *e e*	*Kittery Point, Me.*	Zeta House.
Woodman, Francis Ward *c*	*West Derry.*	Beta House.

JUNIORS.

Name.	Residence.	Room.
Ackerman, Laurence Day *c*	*Bristol.*	Kappa Sigma House.
Atwell, Robert King *g*	*Portsmouth.*	Pettee Block.
Batchelder, Henry Edward *m e*	*Exeter.*	Pettee Block.
Brown, Edna Olive *g*	*Rye Beach.*	Mr. Wentworth's.
Cash, James Denis *a*	*Manchester.*	Zeta House.
Chase, Carl *m e*	*Webster.*	Kappa Sigma House.
Doe Marion *g*	*Durham.*	Mr. F. Doe's.
Ellsworth, Perry Foss *e e*	*Meredith.*	Mr. Hoitt's.
Falconer, John Ironside *a*	*Milford.*	Beta House.
Fellows, Ernest Roslyn *c e*	*Exeter.*	Mr. F. Brown's.
Goodwin, Otis Dana *e e*	*Hollis.*	Pettee Block.
Hammond, Roland Bowman *e c*	*Nashua.*	Zeta House.
Huse, Merritt Chase *e e*	*Concord.*	Kappa Sigma House.
Kelley, Charles William *m e*	*Barnstead.*	Beta House.
Kennedy, Carl Duncan *c*	*Concord.*	Pettee Block.
Lougee, Bernard Ayers *e e*	*Pittsfield.*	Dr. Grant's.
Merrill, Maurice David *c c*	*Andover.*	Thompson Hall.
O'Connor, John Joseph *e e*	*Portsmouth.*	Zeta House.
Parker, John Edward *a*	*Goffstown.*	Mrs. Sanders'.
Peaslee, Albert *m e*	*Gonic.*	Mr. Burnham's.
Pike, Herbert Samuel *m e*	*Lisbon.*	Mr. Edgerly's.
Pratt, Lester Albert *c*	*Alton Bay.*	Kappa Sigma House.
Priest, James Harry *c e*	*Manchester.*	Mrs. J. Thompson's.
Quimby, Harold Wallace *m e*	*Northwood Narrows.*	Mr. Hoitt's.
Richardson, Charles Sidney *m e*	*Cornish Center.*	Beta House.
Sargent, George Jackman *c*	*Concord.*	Pettee Block.
Smalley, Lee Lawrence *m e*	*Walpole.*	Delta Hall.
Stevens, Ernest Morton *m e*	*Andover.*	Pettee Block.
Stokes, Iva Dorothy *g*	*Epsom.*	Mr. Wentworth's.
Townsend, Harry Storrs *a*	*Lebanon.*	Delta Hall.
Trickey, John Paul *c*	*Rochester.*	Kappa Sigma House.
Tucker, James William *e e*	*Concord.*	Pettee Block.
Wendell, Chester Snell *e e*	*Dover.*	Beta House.
Wilder, Howard Erwin *m e*	*Amesbury, Mass.*	Pettee Block.
Wilkins, Carroll Blaisdell *a*	*Nashua.*	Zeta House.
Wilkins, Harold Hartshorn *m e*	*Amherst.*	Delta Hall.
Woods, Arthur Page *m e*	*Bath.*	Pettee Block.

SOPHOMORES.

Name.	Residence.	Room.
Anderson, David Wadsworth *a*	*Manchester.*	Kappa Sigma House.
Bills, Frank Hartwell *e*	*Reed's Ferry.*	Mr. Hayes'.

SOPHOMORES (*Continued.*)

Name.	Residence.	Room.
Blake, Alfred Edward *c*	*Nashua.*	Prof. Scott's.
Boynton, Dalton *e*	*Little Boar's Head.*	Pettee Block.
Bryant, Orville Frank *c*	*Ashland.*	Kappa Sigma House.
Burns, Lucian Holmes *a*	*Milford.*	Prof. Scott's.
Burroughs, Edgar Herbert *e*	*Sanbornville.*	Kappa Sigma House.
Burroughs, Wilbur Warren *e*	*Sanbornville.*	Kappa Sigma House.
Campbell, William Smith *e*	*Litchfield.*	Pettee Block.
Chamberlin, George H. *e*	*Woodsville.*	Delta Hall.
Chase, Fred Odell *a*	*Warner.*	Pettee Block.
Clark, Maurice Chester *e*	*Marlborough.*	Mr. Stevens'.
Colburn, Kenneth Crosby *e*	*Francestown.*	Beta House.
Corliss, Harry Percival *c*	*Wolfeboro,*	Delta Hall.
Corson, Harry Peach *c*	*Laconia.*	Mr. Sawyer's.
Cotton, Arthur Clyde *e*	*Alton.*	Pettee Block.
Crosby, Percy Raymond *e*	*Atkinson.*	Pettee Block.
Day, Harold Robbins *c*	*Hudson.*	Zeta House.
Edgerly, Edwin Blake *a*	*Mirror Lake.*	Mr. Hayes'.
Emery, Roland Chester *e*	*Hampton.*	Mr. Burnham's.
Fisher, Stanley Revell *a*	*Ellis, Mass.*	Zeta House.
Fitch, Harry Edward *e*	*Manchester.*	Prof. Parsons'.
French, Edward Daniel *e*	*South Hampton.*	South Hampton.
Hardy, Harold Elwin *a*	*Hollis.*	Beta House.
Hefler, George Burpee *e*	*Jackson.*	Pettee Block.
Hoyt, Simes Thurston *e*	*Newington.*	Beta House.
Kidder, Walter Dennis *e*	*Manchester.*	Delta Hall.
Langelier, Wilfred W. *e*	*Nashua.*	Zeta House.
Leonard, James Mortimer	*Woodsville.*	Kappa Sigma House.
McKone, Frank E. *e*	*Dover.*	Dover.
Lawrence, Cheney E. *e*	*Nashua.*	Kappa Sigma House.
Morrison, Leonard S. *g*	*Penacook.*	Pettee Block.
Neal, Haldimand W. *e*	*Dover.*	Zeta House.
Neal, Robert Abbott *e*	*Dover.*	Zeta House.
Parker, William Brackett *g*	*Portsmouth.*	Kappa Sigma House.
Peel, Charles Edward *c*	*Nashua.*	Beta House.
Perkins, Clement Linwood *c*	*Berwick, Me.*	Kappa Sigma House.
Philbrook, Henry Brown *e*	*North Hampton.*	Mr. Sawyer's.
Read, Harold Clifford *e*	*Westport.*	Pettee Block.
Reynolds, Clearton Howard *c*	*Middletown, N. Y.*	Mr. Schoonmaker's.
Scammon, Raymond Brewster *e*	*Stratham.*	Stratham.
Scott, Bessie Amanda *g*	*Tyson, Vt.*	Miss O'Hearn's.
Swan, Clyde Henry *e*	*Keene.*	Zeta House.
Sanborn, Edson Dana *a*	*Fremont.*	Zeta House.

SOPHOMORES (*Continued.*)

Name.	Residence.	Room.
Tenney, Harry William *c*	*Newport.*	Mr. Schoonmaker's.
Thorp, Theron Alberto *e*	*Exeter.*	Mr. Hayes'.
Towne, Ernest George	*Thornton.*	Mr. Sawyer's.
Upton, Hiram D. *a*	*Manchester.*	Prof. Parsons'.
Wells, Burleigh Ray *e*	*Somersworth.*	Kappa Sigma House.
Wentworth, Stephen Neal *c*	*Rochester.*	Delta Hall.
Wood, Chester Loring *u*	*Dudley, Mass.*	Greenhouse.
Wyman, Horace Chester *a*	*Manchester.*	Zeta House.

FRESHMEN.

Name.	Residence.	Room.
Abbott, Harold Vincent	*Derry.*	Mr. Edgerly's.
Bachelder, John Hutchins	*Concord.*	Pettee Block.
Bennett, Leland Wilson	*Laconia.*	Mr. Edgerly's.
Brackett, Thomas James	*Greenland.*	Mr. Sawyer's.
Branan, Glen Woodhul	*Albany, N. Y.*	Mr. Edgerly's.
Brown, Albert Huckins	*Strafford.*	Mr. Edgerly's.
Brown, Charles Owen	*Concord.*	Mrs. Morgan's.
Brown, Robert Elsmere	*Marlborough.*	Mr. Stevens'
Burbeck, Perry James	*Haverhill.*	Pettee Block.
Carpenter, Roy Elbert	*Medford, Mass.*	Pettee Block.
Chandler, Harry Merton	*North Chatham.*	Mr. Schoonmaker's.
Colby, Arthur Samuel	*Tilton.*	Pettee Block.
Converse, Henry Thomas	*Amherst.*	Mr. Sawyer's.
Davis, John Worthen	*Concord.*	Mr. Schoonmaker's.
DeMeritt, Margaret	*Durham.*	Mr. A. DeMeritt's.
Drew, Lucy Abby	*Colebrook.*	Miss O'Hearn's.
Drew, Mariette Alice	*Colebrook.*	Miss O'Hearn's.
Easterbrook, Ralph Lewis	*Dudley, Mass.*	Mr. Stevens'.
Fisher, Frank Gordon	*Woburn, Mass.*	Mr. Edgerly's.
Gaddas, Sumner Felt	*Hillsborough Bridge.*	Mrs. Sanders'.
Gove, Willis Ansel	*Gilford.*	Mr. Edgerly's.
Hall, William Leslie	*Orleans, Mass.*	Mr. Schoonmaker's.
Hargreaves, Frederick Forest	*Nashua.*	Pettee Block.
Hatch, Olive Estelle	*Dover.*	Dover.
Hoben, Frank M.	*Concord.*	Zeta House.
Holmes, Harry Wesley	*Northwood.*	Delta Hall.
Jennings, Earle B.	*Winchester.*	Mr. Burnham's.
Judkins, Henry Forrest	*Kingston.*	Kingston.
Kemp, Charles Willis	*Kingston.*	Kingston.
Kennedy, Frank P.	*Dover.*	Mr. Schoonmaker's.

FRESHMEN (*Continued.*)

Name.	Residence.	Room.
Lane, Arthur Seavey	*Kittery, Me.*	Beta House.
Little, Webb	*Campton Village.*	Mr. Schoonmaker's.
Locke, Charles Hubert	*Manchester.*	Pettee Block.
McLucas, Charles Abraham	*Nashua.*	Pettee Block.
McGrail, Frederic Richard	*Nashua.*	Zeta House.
Martin, Harold S.	*Hinsdale.*	Mr. Edgerly's.
Morrill, Winfred	*Pike.*	Pettee Block.
Nason, Carl Eastman	*Concord.*	Mr. Burnham's.
Parker, Edward G.	*Portsmouth.*	Miss O'Hearn's.
Parker, William Folger	*Goffstown.*	Mrs. Sanders'.
Parsons, Charles Lathrop, Jr.	*Durham.*	Prof. Parsons'.
Pease, Bret	*Ashland.*	Mrs. Sanders'.
Pierce, Leonard Emerson	*Worcester, Mass.*	Pettee Block.
Piper, Robert Clark	*Stratham.*	Stratham.
Proud, Benjamin Franklin	*Manchester.*	Mr. Schoonmaker's.
Proud, Brenton	*Manchester.*	Kappa Sigma House.
Quimby, Waldo Hutchinson	*Concord.*	Mr. Burnham's.
Roberts, George Filmore	*Alton.*	Pettee Block.
Robinson, Charles Harrison	*Marlborough.*	Mr. Stevens'.
Robinson, Lilla Maria	*Marlborough,*	Miss O'Hearn's.
Smart, Guy	*Rochester.*	Mr. Edgerly's.
Stark, Eldon Eugene	*Haverhill.*	Pettee Block.
Sughrue, Timothy George	*Nashua.*	Pettee Block.
Thompson, Robert	*Durham.*	Mr. L. Thompson's.
Townsend, Philip Nelson	*Lebanon.*	Mr. James'.
Tuttle, Harry Benjamin	*Atkinson.*	Pettee Block.
Warner, William Pearl, Jr.	*Plaistow.*	Plaistow.
Whittemore, Charles Farnum	*Pembroke.*	Mrs. Morgan's.
Wilkins, Aaron Wallace	*Amherst.*	Delta Hall.
Wright, Charles Shannon	*Portsmouth.*	Greenhouse.
Wright, Chesley Frank	*New Durham.*	Prof. Scott's.

TWO YEAR COURSE.

SECOND YEAR.

Name.	Residence.	Room.
Holmes, George Allen	*Langdon.*	Pettee Block.
Hunter, Ernest Melville	*Melvin Village.*	Mr. Hayes'.
Leavitt, Guy	*Sanbornton.*	Pettee Block.
Littlefield, Harold Thom	*Salem Depot.*	Pettee Block.
Parmenter, William O., Jr.	*Springfield, Mass.*	Pettee Block.
Colburn, Luther Dodge	*New Boston.*	Mr. James'.

TWO YEAR COURSE (*Continued.*)

First Year.

Name.	Residence.	Room.
Hill, Claudian F.	*Wakefield.*	Pettee Block.
Martin, Leslie Chapin	*Chicopee, Mass.*	Mr. James'.
Melkonian, James	*Alton.*	Mr. A. Meserve's.
Sleeper, Almond Lufkin	*Exeter.*	Exeter.
Smith, Joseph Walker	*Worcester, Mass.*	Mrs. Morgan's.
Waite, Iru Merrill	*Goffstown.*	Mr. Sawyer's.
Woodbury, Sherman Perham	*New Boston.*	Mr. James'.

SPECIAL COURSE.

Name.	Residence.	Room.
Abbott, Walter Sidney	*Manchester.*	Miss O'Hearn's.
Arozian, Ohannes A.	*Nashua.*	Prof. Scott's.
Bunker, Eva	*Durham.*	Mr. J. Bunker's.
Hobbs, Elizabeth Kittredge	*No. Berwick, Me.*	No. Berwick, Me.
Lyons, John Clarence	*Beverly, Mass.*	
Nixon, William George	*East Brentwood.*	
Tredick, Helen F.	*Exeter.*	Exeter.

TEN WEEK COURSE.

Name.	Residence.	Room.
Armstrong, Maurice Greeley	*Windham.*	
Collins, Harold Dean	*Peterborough.*	
Cranshaw, Lawrence	*Lawrence, Mass.*	
Gilchrist, Eugene Fred	*Peterborough.*	
Greenwood, Burnie Hilton	*Enosburg Falls, Vt.*	
Harvey, Arthur Charles	*Bombay, N. Y.*	
Shute, Harry Frank	*Lancaster.*	

SUMMARY.

Seniors	26
Juniors	37
Sophomores	52
Freshmen	61
Students in Ten Week Course	7
Students in Two Year Course	13
Special Students	7
Total	203

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly $800,000, the annual income from which will be about $32,000.

The state legislature accepted the Thompson bequest March 5, 1891, and on April 10th of the same year appropriated $100,000 for buildings. Approximately $50,000 was realized from the sale of property and from other

sources. In 1893 an additional appropriation of $35,000 was made by the state for completing and furnishing the buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio;* the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalog, under the prescribed heads of "agriculture" and "the mechanic arts."

GENERAL INFORMATION.

New Hampshire College offers the following courses:

1. Agricultural Courses.
   a. Four-year course.
   b. Two-year course.
   c. Ten-week course.
2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. General Course.

The college is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalog, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is $60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying $40 and tuition, $60—total, $100. These are to be assigned under the following conditions:

1. They are to be given to young men taking an agricultural course.

2. Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

3. Scholarships not taken by students from Cheshire County, and those in excess of the number of towns, will be assigned to agricultural students, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholarship is to pay tuition, $60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham, the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided,*

"That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty,

by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship."

These scholarships yield $400 annually or one hundred dollars to each holder.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

Grange Scholarships.—Each subordinate and Pomona grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four-year or two-year courses in the college, each appointment to be good for four years if in a four year course, and for two years if in a two year course. Students holding these scholarships will be relieved from paying the annual tuition fee of sixty dollars, but will not be relieved from payment of incidental or other fees. Scholarships may be forfeited at any time by misconduct of the student or by his failure in a sufficient number of studies, or by his inability to meet the entrance requirements. Women may hold these scholarships on the same terms as men.

The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise. Holders of grange scholarships must be residents of New Hampshire.

PRIZES.

I. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

II. *Erskine Mason Memorial Prize.—Mrs. Erskine* Mason, of Stamford, Conn., has invested one hundred dollars as a memorial to her son, a member of the class of 1893, the income of which is to be given, for the present, to

that member of the senior class who has made the greatest improvement during his course.

ESTIMATE OF EXPENSES.

Tuition,	Free	$60.00
Text-books,	$10.00 to	30.00
Military uniform for new students,	16.00 to	16.00
Drawing instruments and materials,	7.50 to	30.00
Fees*,	20.00 to	20.00
Room rent, including fuel,	30.00 to	50.00
Board, $3 to $3.50 per week, for thirty-five weeks,	105.00 to	122.50
Total,	$188.50	$328.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, pedagogy, drawing, biology and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

*Includes all charges commonly considered extras, except those for breakage and damage to college property.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology and chemistry.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Special students shall be admitted only by vote of the faculty. Any person of mature years (not a candidate for a degree) may be so admitted upon presenting satisfactory evidence of his ability to complete the desired course of study.

REGISTRATION.

All undergraduate students who desire to attend the college during a term are required to register at the registrar's office on or before 4 p. m. of the first day of such term. Every former student registered after the first day of any term shall be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

TERM BILLS.

Tuition and fees are payable in advance in two equal installments, one on the first day of the fall term, and the other on the first day of the winter term of each year. No student shall receive his registration card or attend classes until his term bills are paid.

ATTENDANCE.

All male students are required to attend military drill.

All students are required to attend chapel exercises. Students accumulating more than five unexcused absences from chapel during the fall term, more than three during the winter term, or more than three during the spring term, shall be placed on probation.

Attendance upon class work is, in general, under the control of the heads of departments concerned. However, excuses for absence for one day or more, may be obtained of the dean in advance, and should be passed to the registrar by the student not later than twenty-four hours after the termination of such absence. Excuses for absence less than one day should be obtained of the instructors concerned. If excuses are for an indefinite time, the student must report to the registrar within twenty-four hours after his return to his studies, if he wishes to receive credit for his excuses.

In no case will the excuse relieve the student from class work.

Any head of a department may, without faculty action, exclude from examination any student who has been absent from twenty per cent of the exercises of any class under his charge.

All classes shall begin at seven minutes after the hour scheduled, and close promptly at the end of the hour.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any student, who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, shall pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay. No student shall be permitted to make changes in courses elected by him after one week from the time of his registration in each term, except by vote of the faculty and the payment of one dollar.

AMOUNT OF WORK.

No student shall be permitted to carry less than sixteen or more than twenty-one credit hours per week of classroom work or its equivalent, exclusive of military drill, without the consent of the faculty.

EXAMINATION ON ENTRANCE DEFICIENCIES.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the three days preceding the beginning of the fall term, and upon the last Saturday of each term. A student who takes a deficiency examination upon an entrance subject, at any other time, must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college, or more than one at the beginning of the second year, will not be allowed to register until such conditions have been removed.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies must be submitted to the president before the fifteenth day of December preceding graduation. The thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding commencement. The thesis must be completed in typewritten and bound form by the Tuesday preceding commencement and be in the hands of the department concerned. The thesis shall be typewritten or printed upon standard thesis paper 8½ by 11 inches, medium weight, neatly bound in black cloth and gilt-lettered on first cover with title, name of author, degree sought and year of graduation. This bound copy shall be approved by the faculty, filed and left with the college librarian.

GRADUATION.

Those who complete a four year course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent for one of the four year courses will be accepted which does not contain an average of at least 18 credit hours per term, in addition to military drill, for four years, and all of the required subjects of the first two years which are common to all of the four-year courses.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

SUNDAY SERVICES.

Although the only church in Durham is nominally congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school, prayer-meetings and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western Division of the Boston and Maine Railroad, 62 miles from Boston, and about midway between Rockingham Junction and the City of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochère* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains a blower-room, with apparatus for controlling the heating and ventilation of the building, geological laboratory, a lavatory, and rooms used for storage.

One half of the first floor is occupied by the mechanical and free hand drawing and machine design rooms. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting room for women.

On the second floor are more offices, the zoological laboratories and recitation rooms for biology, mechanical engineering, philosophy and modern languages.

On the third floor are the large hall used as an auditorium, two society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

LIBRARY BUILDING.

The library building, completed this year, was made possible by the generosity of Mr. Andrew Carnegie and by an act of consolidation whereby the college assumed the care of the Durham libraries and added to its building fund a sum of money which Mr. Hamilton Smith, late of Durham, provided for a public library building. It is a two-story

building, with a frontage of 75 feet and a depth of 65 feet, not including the stack extension, which gives shelving room for sixty thousand volumes. On the main floor are the delivery, reference, reading, and children's rooms and librarian's office. The second floor is to be used for seminar and lecture rooms. The stack room is fitted with a three-story stack, the second floor being on a level with the main floor of the library.

MORRILL HALL.

This building was erected in 1902 at a cost of about $30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. It is plain and simple in outline, and gives the impression of strength and solidity. The material is brick, laid in Flemish bond, with trimmings of the clear, almost white Suncook granite. These relieve and brighten to a certain extent the general effect of plainness and simplicity. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the mechanical building. The Johnson system of automatic temperature regulation has been installed. Adequate ventilation is secured throughout the building by means of a large fan in the basement. All the floors are of maple, except the basement, which is cement. Only the ceilings of the rooms are plastered, the side walls being of bare brick, calcimined Indian red.

A vestibule, eight feet wide, runs through the center of the building the long way on each floor, except the fourth.

In the south end of the basement there is a room 56 by 32 feet, which is used for the exhibition of the different makes of agricultural implements and tools. The north end of the basement is fitted up for a live stock judging room. On the basement floor there are also a lavatory, provided with wash-stands and shower-bath, a bulletin mailing room, a soil-storage room, a fan and heating-room and a janitor's room.

The first floor is occupied by the department of agriculture and the agricultural experiment station library of over 1,000 volumes. It contains two class-rooms—one for agronomy and one for animal industry—a soil physics laboratory with a preparation room attached, the farm superintendent's room, and the offices of the professor and assistant professor of agriculture, and of the director of the agricultural experiment station.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural and agricultural reading-room and the offices of the professor and assistant in horticulture. The second floor is also provided with a refrigerator room, in which the fruits and vegetables used for laboratory work may be preserved. Both the first and second floors are provided with fireproof vaults in which important records and expensive equipment are kept.

CONANT HALL.

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the department of physics and electrical engineering.

It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; a department library of physical and electrical books and periodicals; an electrical laboratory; and the physical lecture room. For optical experiments the room can be darkened by means of special window shutters, operated from one of the lecture desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand-work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood-shop, in which the common branches of carpentry, joinery and pattern-making are taught. Practice is given in the use of carpenters' tools and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, forge shop and foundry.

There are four boilers, aggregating 240 horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney, 95 feet high, carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding, tempering and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood-shop.

THE ARMORY.

The armory is a brick building with granite trimmings. The main building is 61x99. It has a headhouse, on each corner of which is a tower. One tower is battlemented and is three stories high, to correspond with the headhouse roof, and has a slated peak. The headhouse, or portion of the building nearest the street is 31x46. In the basement of the main building are two bathrooms, one 16x22, containing two shower baths to be used by the faculty and visiting teams. The other bathroom on this floor, size 12x16, is for the use of the students and contains five shower baths; adjoining this is a locker room, 28x30; a drying-room, 5x15; a toilet room, 8x12, and a room, 8x28, for gymnasium supplies. As this does not take up all the basement floor, there is a space, 37x52, reserved for a swimming pool, bowling alley, ball cage, etc., to be completed at some future time.

On the first floor of the main building is the drill hall or gymnasium, size 58x97, with a balcony in the second story, which furnishes a running track six feet wide.

On entering the building from the street, there is an office on the right, to be devoted to the uses of the professor of military science, one for the physical culture director, and a private office in the tower. To the left of the hallway is a military lecture room.

On the second floor of the headhouse are the College Club rooms, one 20x43, and the other 10x16. These are fur-

nished with billiard and pool tables; a piano presented to the college club by the college alumni association; easy chairs and window seats, all in mission style furniture.

The equipment of the gymnasium includes chest weights, dumb bells, Indian clubs, wands, bucks, horses, horizontal and parallel bars, traveling rings, ladders, punching bags, etc.

NESMITH HALL.

Nesmith Hall, a two-story brick building, is occupied by the chemical, botanical and dairy departments of the agricultural experiment station. It contains the offices, libraries and laboratories of the chemical and botanical departments and the office of the dairy department. The recitation room of the botanical department is also in this building.

DAIRY.

The dairy building is a wooden structure of one and one-half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns and refrigerators, together with the engine.

BARNS.

The dairy barn is a large wooden structure, erected in 1895 at a cost of about $10,000. The main portion is 45 by 100 feet, two stories high, and with a basement in which are box stalls, calf and sheep pens, a cold storage room, root cellar, feed, dressing and milk rooms. A story and a half L 35 by 100 feet, with basement, is attached to the main structure. The first floor of the L is on a level with the basement of the main barn and contains stalls to accommo-

date 56 head of cattle. The basement of the L contains pig pens, while the loft is used for the storage of feed, fertilizers and machinery. With the exception of the space occupied by a granary, a 120-ton silo and a 12-foot driveway, the upper floors of the main barn are used entirely for hay and forage, there being capacity for about 175 tons.

A second barn of old-style building is used by the agricultural department for the storage of hay, implements and wagons and for stabling the department horses.

A third barn, 25 by 60 feet, recently modeled, is used by the horticultural department for its horses and wagons and the storage of spraying machines and various garden implements.

GREENHOUSES.

The new range of greenhouses has been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven distinct houses, besides a propagating hallway. Connected with the glass structure is a workroom, 20 by 30 feet, which also answers as an office for the florist, and is equipped with scales, seed-boxes and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The attic has two good rooms, one of which is occupied by the greenhouse attendant. The whole system is heated by steam, the boiler being a Lord & Burnham Co. sectional. The houses are piped so that the temperature can be regulated for any kind of crop, and offer exceptional opportunities for experimental work. The main palm house and four of the lateral houses were built by the Lord & Burnham Co., greenhouse contractors, and are of steel superstructure. The other two, together with the passageways to the potting house, are constructed of cypress, with angle iron eaves plates and iron supports. One house is equipped for greenhouse management instruction and each student is given definite laboratory space and prescribed work. Two of the houses have ground beds and are adapted for forcing vegetables. The

remaining houses have raised beds, excepting the center of the palm house, which has a ground bed.

These houses are lighted with electricity and offer unusual facilities for instruction and experimentation. When students have completed the required greenhouse courses, they are prepared to take positions as florists or gardeners of estates, etc.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn and grain binders, threshers, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL INDUSTRY.

For the various courses in animal industry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys, Holsteins and Shorthorns. The college owns eight head of horses representing the draft type, and to become acquainted with the trotting

and thoroughbred types the students are taken to various stock farms where these types can be inspected and judged.

For the study of the different breeds of sheep and swine the college flocks of thoroughbred Southdowns, Dorset Horns, Shropshires, Hampshires, Lincolns and Merinos and herds of medium Yorkshires and Berkshires are used. Representatives of other breeds are rented for practical study and judging.

In the new agricultural building a large room has been fitted up for the judging of live stock, instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past few years. The entire second floor of Morrill Hall is given up to this department and contains offices, lecture-rooms, laboratories, herbarium room, seminary and library room, and a cold-storage room. On the basement floor this department has also in conjunction with the agricultural department a photograph room, soil and carpenter's room, and an implement room. The lecture room is fitted up with a stereopticon lantern. The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. During the fall term over 100 varieties of apples are studied by the students. Grapes and pears are received from western New York, and other fruits, apples in particular, from Pennsylvania, West Virginia, New York, Ohio, Minnesota, Oregon, various parts of New England and Canada. Large numbers of varieties of vegetables are grown in

the experiment station trial grounds, and these offer exceptional opportunities for identification and study in the laboratory for some time after field conditions have gone by. The orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of different kinds of fruits are to be found in the orchards. These are young, but coming into bearing. The plum orchard has 60 varieties in bearing. Grapes, peaches, apples, cherries and small fruits are also grown at the agricultural experiment station. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department. The collection of lantern slides is continually being enlarged.

COLLEGE FOREST.

A tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers ample opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

All available space in this building is filled with various forms of cream separators, churns, testing apparatus and other dairy appliances. Steam is supplied by the large boilers at the power-house. In addition to the product of the college herd, milk is received from about 25 farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories

and contain a 40 horse-power engine which furnishes power for the shops and electric lighting of the college buildings; a shaft-governor, slide-valve engine; a direct acting steam pump; and a large compound duplex pump. This pump receives water under a head of 15 feet through an eight-inch pipe from a reservoir one-half mile distant, and forces it through underground mains to the various hydrants and buildings or through nozzles for measurements during tests. It is fitted with indicator motions and other necessary equipment for complete duty tests. The pump with its long supply pipe, a 10-inch standpipe and a 6,000-gallon tank, furnishes apparatus for an extensive series of hydraulic experiments.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression and transverse tests; a 12 horse-power gas engine; a marine gas engine; a Westinghouse air-brake pump with locomotive and tender attachments; steam and gas engine indicators; a surface condenser, with a capacity of 2,000 lbs. per hour, fitted with a 5½x8x7 air pump; Bristol pyromoter reading to 2,800 degrees F.; Pitot tubes; differential gauges; cement testing machine with the necessary sieves and other apparatus for testing cement according to the recommendations of the committee for cement testing; and the usual supply of scales, gauges, thermometers and small apparatus. The three sectional boilers and the 66″ return tubular boiler, with the 95 ft. brick stack are used for boiler tests and flue gas analysis, by means of the Orsat apparatus, pyrometers and thermometers reading to 1,000 F. The 66″ boiler is also fitted with two forms of forced draught apparatus thus giving an opportunity for commercial tests with different grades of fuel, especially the cheaper grades. The ventilating fans and engines of the various buildings as well as the engines at the creamery, electrical laboratory and barn are available for testing. Opportunity is not only given for the student to test the engine or machine but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice. Each year the proprietors of a nearby mill allow the class in valve gears to take exercises in valve setting on their 50 horse-power Corliss engine.

WOOD-SHOP.

This occupies the larger part of the second story of the main building. It is supplied with benches and the necessary tools to accommodate 20 students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber, patterns and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; 12 benches with vises, and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work. The lathes in the wood-shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains 13 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is fur-

nished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 by 5 vertical engine. The student is taught the principles of forging, welding and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks and bench tools. Foundry work is taken in connection with the course in pattern making, and the student molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory has a collection of the usual apparatus for laboratory work and lecture-room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism and electrical engineering the equipment includes instruments such as a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade, four-spool Thomson reflecting galvanometer; D'Arsonval galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary

work; a complete photometer equipment for comparing incandescent and arc lamps, and the distribution of light from the latter for both open and inclosed arcs and when used with different forms of reflectors; two Edison bipolar 3 K. W. generators; one Edison bipolar 15 K. W. generator; one G. E. 4 pole 15 H. P. generator, all fitted with slip rings so as to furnish either or both direct and alternating currents, or be used as motors; a small, low-potential testing unit, consisting of a universal alternator belted to a direct current motor and capable of adjustment to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be connected to the universal alternator or to the secondary of the transformer on the lighting system or to the above mentioned generators, any one of which may be driven at any speed by one of the others run as a motor; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or affording loads in obtaining characteristics, efficiencies and standard forms of voltmeters and ammeters, power factor meters, phase indicators, etc.

For more strictly electrical engineering work, the department has available the 500-light alternator used in lighting the college buildings.

In the dynamo laboratory the Westinghouse junior engine is capable of developing about 23-brake horse power under 100 pounds steam pressure. This engine, being on a practically independent line of steam pipe, maintains an extension of its own shaft serves to drive the different dynamos by means of endless belts. The workshop is equipped with a good set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments; also, a small speed lathe for drilling and wood working purposes, a Union combination saw with scroll, moulding and boring attachments, a small hand-driven metal planer and a sensitive drill. This shop is furnished with a motor for driving its main shaft and countershafts.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

ZOOLOGY.

The zoological laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes. New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

One-half of the entire first floor in Thompson Hall is devoted to the use of the drawing and machine design department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. There is an excellent collection of working models and machines for machine

drawing and various machines in other departments are available for this work.

There is a good working library connected with this department, including reference books in mechanical and free hand drawing and elementary and machine design.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have been made from various sources. Many specimens are being collected to illustrate zoology, especially entomology.

LIBRARY.

In accordance with an act of consolidation between the libraries of Durham and the college, the books of the Durham public library and the college are all shelved in the new building just completed for that purpose. This consolidation makes an especially good collection, the scientific books of the college supplementing well the more popular books of the town library. The consolidated libraries number about 20,000 bound volumes and 5,000 pamphlets.

In the reading room are to be found all the leading American and foreign periodicals, local, Boston and New York daily papers.

In the reference room are shelved about 2,000 bound volumes, which give good opportunity for reference and research work. There is also provision for the future in the second story rooms, which can be used for department libraries when the reference room proves inadequate.

Aside from the main library, each department has its departmental library of the more technical books and those which are of special use in the laboratories and work-shops.

FOUR YEAR COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoology in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agri-

cultural course, but in his junior year he begins to specialize in botany and zoology, a considerable proportion of his time during the rest of his course being given to these subjects. Students taking this course will elect, with the advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis. Two years of German are required.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year. Two years of German are required.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are: mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practician and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN CHEMICAL ENGINEERING.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work,

both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. Owing to the fact that the laboratories are becoming overcrowded the number of students taking this course is limited to six in each class. These six are chosen in the early part of the sophomore year from among those who have applied. Fitness to become successful chemists will alone determine the choice made.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the latter largely from September to December 1st and from April 1st to June, the former having special reference to the duties of the line.

The organization is a battalion of three companies with a band, officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished Krag-Jorgenson magazine rifles, model 1898, and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range, with firing points at 200, 300 and 500 yards. The rolling country in the vi-

cinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills and the new gymnasium and drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty, and may at other times, provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black braid on cuffs and collars of blouses and blue caps, army regulation. The letters N. H. C. are embroidered in gold on each side of blouse collar. The cost of such a uniform does not exceed $16 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior class; all other students, excepting those presenting surgeon's certificates of disability, are required to attend both drills and recitations.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the adjutant-general of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register.

REQUIREMENTS FOR ADMISSION TO FOUR YEAR COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of 14 units.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group	A	3 units
	B (American History or Ancient History)	1 unit
	C.....(Algebra and Plane Geometry)	2 units
	D.....(Physics and Biology)	2 units
	E.....(French or German)	2 units
		10 units
	(Optional)	4 units

GENERAL COURSE.

Candidates for admission who intend to take the General Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group	A	3 units
	B (American History or Ancient History)	2 units
	C.....(Algebra and Plane Geometry)	2 units

D	(Physics)	1 unit
E	(French or German)	2 units
		10 units
	(Optional)	4 units.
Total		14 units

ENGINEERING AND CHEMICAL COURSES.

Required Group A		3 units
B	(American History or Ancient History)	1 unit
C	(Algebra, Plane and Solid Geometry)	3 units
D	(Physics)	1 unit
E	(French or German)	2 units
		10 units
	(Optional)	4 units
Total		14 units

GROUP A.

English.—The New England College Entrance Requirements in reading and study,—three periods a week for four years.

Reading and Practice. Each candidate will be required to present evidence of a general knowledge of the substance of the books mentioned below and to answer simple questions on the lives of their authors. The examination will usually be the writing of one or two paragraphs on each of several topics. The treatment of these topics is designed to test the power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of this test the candidate may present an exercise book, certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

In 1908 it will be based upon: Shakespeare's Macbeth and The Merchant of Venice; The Sir Roger de Coverley

Papers in The Spectator; Irving's Life of Goldsmith; Coleridge's The Ancient Mariner; Scott's Ivanhoe and The Lady of the Lake; Tennyson's Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; Lowell's The Vision of Sir Launfal; George Eliot's Silas Marner.

Study and Practice. This part of the examination presupposes a careful study of the works named below. The examination will be upon subject-matter, form and structure; and will also test the candidate's ability to express his knowledge with clearness and accuracy.

In 1908 it will be based upon: Shakespeare's Julius Cæsar; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essay on Milton and Life of Johnson.

—3 units.

GROUP B.

The work offered for each unit in History must consist of at least three exercises per week during one year of the high school course. In case two years have been given to Grecian and Roman History, either with or without other Ancient History, credit will be given for two units. For details of preparatory work in History reference is made to "A History Syllabus for Secondary Schools, by the New England History Teachers' Association." Boston, D. C. Heath & Co., 1904.

1. American History and Civics.

The History requirements are covered by Channing's Students' History, by Montgomery's Students' History, or by Hart's Essentials, with the collateral work. The work in Civics must include at least a knowledge of the Constitution of the United States.

2. Ancient History.

Wolfson's Essentials or an equivalent, with the collateral work, or, the History of Greece and the History of Rome as given in works like Myers' History of Greece, Morey's Outlines of Greek History, Allen's Roman People, Myers' Rome and Morey's Out-

lines of Roman History. The requirements are limited to Grecian History and Roman History to A. D. 476.

—1 unit.

3. English History.

The amount of English History required is represented by Gardiner's Students' History, by Larned's or Montgomery's History, or by Walker's Essentials, with the collateral work.

—1 unit.

4. Mediæval and Modern History.

Harding's Essentials of Mediæval and Modern History with the collateral work, or Myers' Mediæval and Modern History, or an equivalent.

—1 unit.

GROUP C.

Algebra through quadratic equations, including radicals and fractional and negative exponents, and Plane Geometry.

—2 units.

SOLID GEOMETRY.

The equivalent of Wells' presentation.

—1 unit.

PLANE TRIGONOMETRY.

The equivalent of Wentworth's presentation.

—1 unit.

GROUP D.

PHYSICS.

The preparation required for entrance in Physics shall be an equivalent of 75 class exercises, one hour each in length.

When certificates are offered, they should state the number of exercises and time allotted to each exercise.

—1 unit.

BIOLOGY.

COURSE 2. Students in the Agricultural Course must present either

A. Zoology.

Kellogg's Elementary Zoology, Linville and Kelly's Text book in General Zoology, Jordan and Kellogg and Heath's Animals, Needham's lessons in Zoology, Coulton's Zoology, or an approved equivalent, occupying at least three periods per week for a half year, at least one of which is devoted to laboratory work.

—½ unit.

and Botany.

Bergen's Elements of Botany, or an approved equivalent, occupying at least three periods per week for a half year, at least one of which is devoted to laboratory work.

—½ unit.

or

B. Botany.

Coulter's Text Book of Botany, Bergen's Foundations of Botany, or an approved equivalent, occupying at least three periods per week for one year, at least one of which periods is devoted to laboratory work.

—1 unit.

GEOLOGY.

COURSE 3. Leconte's Compend or an approved equivalent.

—½ unit.

CHEMISTRY.

COURSE 4. Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Storer & Lindsay's Manual, Witham's Elements or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.

—1 unit.

Accompanying the certificate for each of the sciences the student must present at entrance a note-book containing records and drawings of his or her observations and experiments in the laboratory, which must bear the certificate of the teacher in charge that the work was done personally in the laboratory.

GROUP E.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives and pronouns, the elements of syntax, the uses of the modal auxiliaries and the translation from English into German of simple connected passages based on one of the books read. More attention, however, is paid to the translation from German into idiomatic English. The student should read at least 200 pages of German prose. The following books are recommended:

1. Collar's First Year German (Ginn & Co.); Kaiser and Monteser's Brief German Course (American Book Co.); Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader; Lange's Beginners' German Book (Allyn & Bacon); Carruth's German Reader (Ginn & Co.); Stern's Geschichten vom Rhein (Com. Bk. Co.).

2. Hillern, Höher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Baumbach's Der Schwiegersohn; Gerstäcker, Irrfahrten; Heine, Die Harzreise; Freytag, Aus dem Staat Friedrichs des Grossen. —2 units.

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More attention, however, is paid to the translation from French into idiomatic English. The student should read at least 400 pages. The following books are recommended:

1. Fraser & Squair's French Grammar (Heath); Laboulaye, Contes Bleus (Heath); Colin, Contes et Sayñetes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon); Aldrich & Foster's French Reader (Ginn & Co.); Bruno's Le Tour de la France (American Book Co.).

2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrian, Le Conscrit de 1813; Dumas, La Tulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable. —2 units.

GROUP F.

Students entering from approved schools may receive credit in their certificates for the following work in Latin or Greek.

LATIN.

Grammar and four books of Cæsar. Two years' work. —2 units.

Vergil, six books.
Cicero, six orations. —2 units.

GREEK.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose, and 1,500 lines of Homer. —2 units.

In place of examinations, certificates will be received from approved preparatory schools, including all that have been approved by the superintendent of public instruction in New Hampshire. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements IN FULL; in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes ANY exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be accepted, and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Certificates must be made out on a blank furnished by

the college, and should be mailed to the dean at the CLOSE of the SCHOOL year.

COMPLETE CERTIFICATES.

THE SIGNATURE OF THE PRINCIPAL IS TO BE AFFIXED TO THE GENERAL CERTIFICATE, AND TO THAT OF EACH DEPARTMENT IN WHICH THE WORK OF THE CANDIDATE IS CERTIFIED.

PARTIAL CERTIFICATE.

In case the work of a graduate has not been up to certificate grade in one or more subjects, the principal is requested to sign the general certificate, crossing out the words "and that in my judgment he is prepared to enter at once upon the work of the freshman year." He is also requested to fill out the group certificates in full *except signature,* the signature being attached only to such as indicate certificate grade.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, on the Tuesday and Wednesday preceding the beginning of the college year. Candidates will present themselves with their credentials on the first day of the examination. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR YEAR COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four year course or its equivalent.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

FOUR YEAR COURSES.
DESCRIPTION OF STUDIES.

AGRICULTURE.

The rapid development of the science of agriculture has made it necessary to divide the subject into several distinct branches or subdivisions, and to give to each of these branches a definite name. Accordingly the various agricultural studies will be found grouped under the following heads: Agronomy, or technical agriculture; Zootechny, or animal industry; Agrotechny, or dairying; Rural Engineering and Farm Economy.

AGRONOMY.

PROF. TAYLOR.

Agriculture 1. Farm Equipment and Farm Crops.

Lectures and recitations upon the selection, planning and equipment of farms; fencing; drainage; farm wells; harvesting and tillage implements; silos and stable construction, etc. History, use and methods of culture of our various farm crops. Practical exercises in leveling and laying out of drains and in the preparation of farm and building plans. Judging and scoring the different varieties of grains and grasses. For Agricultural Juniors.

Three exercises per week. 1st. S.

Agriculture 2. Soils and Soil Physics.

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors.

Three exercises per week. 2nd S.

Agriculture 3. Soil Management and Fertility.

An advanced course in soils for those who have shown a special aptitude in the preceding course. The processes of soil formation, the physics and chemistry of soils, soil classification and mapping and the principles of fertility will be discusssed. The lecture work will be supplemented by laboratory and field experimentation. Elective for Agricultural Seniors.

Three exercises per week. 1st S.

PROF. MORSE.

Agriculture 4. Manures and Fertilizers.

A course of lectures, themes and abstracts on the subject of plant food and its sources. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

RURAL ENGINEERING AND FARM ECONOMY.

PROF. TAYLOR.

Agriculture 5. Agricultural Seminary.

This course consists of library and reference work and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. 1st S.

Agriculture 6. Agricultural History and Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; the principles of economics as applied to the organization, equipment and operation of the farm; tenancy and land ownership; practical problems in farm management. For Agricultural Seniors.

Four exercises per week. First nine weeks 2nd S.

Agriculture 7. Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance

of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors.

Four exercises per week. Last eight weeks 2nd S.

ZOOTECHNY, OR ANIMAL INDUSTRY.

Asst. Prof. Pew.

Agriculture 8. Breeds of Livestock.

Lectures and recitations upon the origin, history, development, characteristics and adaptability of the different breeds of cattle, sheep, horses and swine. In the study of beef cattle, market conditions and requirements are considered. In the study of dairy cattle, milk and butter production is considered. In the study of sheep, mutton and wool requirements are considered, also the raising of early lambs.

In the study of horses, beside the origin, history and development of the breeds, market classifications and management are considered. In the study of swine, the influence of various feeds and different methods of management as affecting types are considered. One afternoon each week is used for judging the different breeds. For Agricultural Sophomores.

Three exercises per week. 1st S.

Agriculture 9. Principles of Breeding.

Lectures and recitations upon the laws of heredity; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, cause and extent; methods of breeding, including discussion of inbreeding, crossing and grading. For Agricultural Juniors.

Two exercises per week. 1st S.

Agriculture 10. Stock Feeding.

Lectures and recitations upon laws of nutrition; composition and digestibility of feed stuffs; influence of feed on the animal body, preservation of coarse fodders; a study of leading cereals and by-products. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors.

Three exercises per week. 2nd S.

Agriculture 11. Veterinary Science.

Lectures and recitations upon anatomy and physiology of the animal body; holding a post-mortem; simple farm medicines and methods of administering; breeding and some of its effects; common farm operations; common infectious and contagious diseases affecting farm animals and methods of treatment. Elective for Agricultural Juniors.

Three exercises per week. 2nd S.

Agriculture 12. Poultry.

Lectures and recitations upon different classes and varieties of poultry; breeding and feeding; location and building of poultry houses; a study of incubators and brooders; methods of preventing disease. Practice will be given in scoring. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

Agriculture 13. Advanced Livestock.

This is a course laid out especially for those students who have shown proficiency in the previous courses having to do with Livestock. Special problems will be worked out as desired by the students concerning the breeds and their management; advanced live stock judging will also be given. Elective for Agricultural Seniors.

Three exercises per week. 2nd S.

Agriculture 14. Animal Mechanics.

Lectures and recitations upon conformation and soundness and anatomy of the horse; the principles of mechanics involved as applied to the animal machine; proportions and conformations of horses for speed and draft; various gaits. Practical exercises in measuring animals and testing value of given measurements for given purposes. Course to be given every other year beginning with 1905. Elective for Agricultural Seniors or Juniors.

Four exercises per week. 1st S.

BOTANY.

Assoc. Prof. Brooks.

3. General Botany.

Lectures and laboratory work on the fundamental principles of plant physiology, followed by the study of a series of representative cryptogams. For Agricultural and General Course Sophomores.

Three exercises per week. 1st S.

4. General Botany.

This course continues the work on type forms begun in Course 3 and includes the study of vascular cryptogams, gymnosperms and angiosperms. The latter part of the semester will be devoted to a study of plant families and plant societies as represented in the local flora. Lectures, laboratory and field work.

Open to students who have completed Course 3.

Three exercises per week. 2nd S.

5. Plant Pathology.

This course deals with the nature, cause and prevention of plant diseases and includes a systematic consideration of parasitic fungi. Lectures and laboratory work.

Open to students who have completed Course 4.

Four exercises per week. 1st S.

6. Mycology.

A study of representative groups of fungi, including the bacteria; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work.

Open to students who have completed Course 4.

Three exercises per week. 2nd S.

7. Plant Physiology.

Lectures and experimental work on absorption, nutrition, growth, respiration and irritability.

Open to students who have completed Course 4.

Three exercises per week. 1st S.

8. Plant Histology.

A minute study of plant cells and plant tissues; starches, aleurones and other cell contents; use of reagents and stains; cutting and mounting of sections. Lectures and laboratory work.

Open to students who have completed Course 4.

Three exercises per week. 2nd S.

9. 10. Advanced Botany.

Opportunity to do original work along special lines will be offered to students who have shown special ability in the preceding courses.

Three exercises per week throughout the year.

CHEMISTRY.

ORGANIC CHEMISTRY—PROF. MORSE.

INORGANIC CHEMISTRY—PROF. PARSONS, ASST. PROF. JAMES, DR. RANDALL.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required. Required of all Freshmen.

Three exercises per week. 1st S.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

Two exercises per week. 2nd S.

3. Elementary Physical Chemistry.

A short elementary course of ten lectures on the Dissociation Theory and its application; the Mass Law, etc. To accompany Courses 2 and 4.

Elective by special arrangement.

4. Qualitative Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work.

Open only to students who have completed Course 1.

1st Division Freshman Year. 2nd S.
2nd Division Sophomore Year. 1st S.
Fifty-one exercises.

5. Qualitative Analysis.

A short advanced course for Chemical Sophomores on insoluble substances and the rarer elements, to precede Chemistry 10. Sophomore Year, first five weeks.

Twenty-five exercises. 1st S.

PROF. MORSE.

6. Organic Chemistry.

Lectures and recitations. A study of the chemistry of the carbon compounds. Required of Agricultural and Chemical Sophomores, elective in General Course.

Open only to students who have completed Chemistry 1 and 2.

Three exercises per week. 2nd S.

PROF. MORSE.

7. Chemistry of Plant and Animal Nutrition.

Lectures and recitations on the composition of plants, animals and foods. Required of Agricultural and Chemical Juniors, elective for General Course Juniors.

Open only to students who have completed Chemistry 6.

Two exercises per week. 1st S.

PROF. MORSE.

8. Organic Chemical Laboratory.

The course consists mainly of laboratory practice in preparing and purifying organic compounds and a study of quantitative

organic reactions and analyses. Lectures and recitations will be held from time to time in connection with the practice. Required of Chemical Juniors, elective for General Course Juniors.

Three exercises per week. 2nd S.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation and analysis. For Chemical Sophomores. Elective in the general course in Sophomore, Junior and Senior years, provided laboratory facilities permit. Last twelve weeks.

Open only to students who have completed Chemistry 4.

Five exercises per week. 1st S.

11. Quantitative Analysis.

A continuation of Course 10.

Six exercises per week. 2nd S.

12. Advanced Quantitative Analysis.

Course 12 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc., Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical Juniors.

Open only to students who have completed Course 11.

Five exercises per week. 1st S.

13. Advanced Quantitative Analysis.

A continuation of Course 12. For Chemical Juniors.

Four exercises per week. 2nd S.

14. Industrial Chemistry.

Course 14 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable. For Chemical Juniors.

Open only to students who have completed Courses 1 and 2.

Two exercises per week. 2nd S.

15. Metallurgy.

Course 15 consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors.

Open only to students who have completed Courses 1 and 2.

One exercise per week. 2nd S.

Courses 14 and 15 are given in alternate years with Course 22.

16. Assaying.

A course in the fire assay of gold and silver ores.

Open only to students who have taken Courses 10 or 18.

Seventeen exercises. 2nd S.

17. Agricultural Analysis.

This course is arranged especially for students of the agricultural course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc.

Open only to students who have completed creditably the work of Courses 1, 2, and 4. Elective subject to desk room in laboratory.

Three exercises per week.

18. Metallurgical Analysis.

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the quantitative determination of ores, slags, metals, alloys, fuels, etc.

Open only to students who have completed creditably the work of Courses 1, 2, and 4 or 5. Elective subject to desk room in laboratory.

Three exercises per week.

19. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, mainly in the German language, with recitations twice a week. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Juniors.

Open to students who have begun Course 11.

Two exercises per week. 1st S.

20. Chemical Journals.

A continuation of Course 19. For Chemical Juniors.

Two exercises per week. 2nd S.

21. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time. Required of Chemical Juniors and Seniors.

Course 21 comes in alternate years and is open to students who have completed Courses 1, 2 and 10.

Two Exercises per week. 1st S.

22. Physical and Electro Chemistry, Lectures.

A continuation of Course 21, and is given in alternate years with Courses 14 and 15.

Three exercises per week. 2nd S.

23. Chemical Research.

Especially arranged for students of the Chemical Engineering Course. May merge at any time into 21 and will usually do so about the middle of the first semester.

Eight exercises per week. 1st S.

24. Thesis.

The work of the last semester of the chemical engineering course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought and manipulation.

Eight exercises per week. 2nd S.

DAIRYING.

ASSOC. PROF. RASMUSSEN.

1. Farm Dairying.

Lectures and recitations on the Babcock test, tests for determining acidity in milk and on the use of the lactometer in detecting adulterations in milk. Includes also a study of the composition of milk separation and churning. The laboratory work will be made applicable to farm conditions. For Agricultural Juniors.

Four exercises per week. 1st S.

2. Advanced Butter Making.

A study of the secretion, chemical and physical properties of milk, pasteurization, cream ripening, commercial starters, churning, marketing and scoring of butter. The laboratory work will be made applicable to factory conditions.

Open to students who have completed Course 1.

Three exercises per week. 2nd S.

3. Technology of Milk.

Consists of a study of the uses of milk and its by products outside the scope of butter and cheese making; the production and

preparation of sanitary, certified, modified milk; the making of condensed milk and koumiss; the manufacture of casein and milk sugar, and the preparation of ices and ice cream.

Open to students who have completed Course 1.

Two exercises per week. 2nd S.

4. Factory Management.

This course is designed for students wishing to fit themselves for managers of large factories and other dairy establishments. It consists of a study of the organization, location, construction, and operation of factories; special problems connected with the manufacturing of butter; dairy conditions and methods in foreign countries.

Open to students who have completed Course 2.

Three exercises per week. 1st S.

5. Dairy Bacteriology and Cheese Making.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work.

A course of lectures will be given covering the details of manufacturing, curing and marketing of the more important kinds of cheese.

Open to students who have completed Course 1.

Two exercises per week. 2nd S.

6. Dairy Research.

A study of the work of the experiment stations and other dairy literature.

Open to students who have completed Courses 1, 2 or 3.

Two exercises per week. 1st S.

DRAWING.*

PROF. PUTNAM, MR. LATON.

These courses are of an industrial nature and include both freehand and mathematical branches of this subject.

* Do not purchase drawing instruments or materials until you have consulted the instructor as to what is necessary. Students intending to take an engineering course should purchase high grade instruments.

The work of the first year is required of all regular students in four year courses, except the General Course.

The advanced mathematical and machine drawing is prescribed for engineering courses.

The advanced free-hand drawing is elective and may be taken only by those with adequate preparation.

MECHANICAL DRAWING.

PROF. PUTNAM, MR. LATON.

1. Industrial Drawing. Prof. Putnam, Mr. Laton.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective; shades and shadows. For Agricultural and Engineering Freshmen, elective for General Course Freshmen.

Agricultural and General Course Freshmen.

Two exercises per week. 1st S.

Engineering Freshmen.

Two and one-half exercises per week. 1st S.

NOTE. — Alternating with shop-work on Wednesdays.

2. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection.

For Engineering Freshmen. (Divisions 1 and 2.)

Division 1, whole semester.

Three exercises per week. 2nd S.

Division 2, first ten weeks.

Three exercises per week. 2nd S.

3. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Continuation of 2. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Freshmen (Division 2). Last seven weeks.

Two exercises per week. 2nd S.

4. Design of Farm Buildings. Prof. Putnam.

This course consists of drawings of floor plans and framing details for farm buildings in preparation for the Rural Architectural Course of the Senior Year. For Agricultural Freshmen.

Two exercises per week. 2nd S.

5. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Same as Course 3. For Engineering Sophomores (Division 1). First seven weeks.

Two and one-half exercises per week. 1st S.

6. Elementary Machine Drawing. Mr. Laton.

Mechanism drawing; detail and assembly drawing of simple machines. For Engineering Sophomores.

Division 1, last ten weeks.

Two exercises per week. 1st S.

Division 2, whole semester.

Two exercises per week. 1st S.

7. Elementary Machine Drawing and Free Hand Drawing of Chemical Apparatus. Mr. Laton.

For Chemical Sophomores.

Two exercises per week. 1st S.

8. Machine Drawing. Mr. Laton.

Working drawings of various machines and machine tools, including steam boiler and engine details. For Engineering Sophomores (Divisions 1 and 2).

Two and one-half exercises per week. 2nd S.

NOTE. — Alternating with shop-work on Wednesdays.

9. Free-hand Drawing. Prof. Putnam.

Light and shade drawing from casts and still life. Charcoal work. Elective for General Course Sophomores.

Two exercises per week. 1st S.

10. Free-hand Drawing.

Wash drawings and water color work; pencil sketching from nature and exercises in perspective. Elective for General Course Sophomores.

Two exercises per week. 2nd S.

11. Architectural Drawing.

Studies of architectural detail and historic ornament. Elective for General Course Juniors.

Three exercises per week. 1st S.

12. Architectural Drawing.

Continuation of 11. The design of a building with details of ornament. Elective for General Course Juniors.

Three exercises per week. 2nd S.

13. Advanced Architectural Drawing.

Elective for General Course Seniors.

Three exercises per week. 1st S.

14. Advanced Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. 2nd S.

NOTE. — Courses 13 and 14 are open only to students who have completed Courses 11 and 12.

16. Free-hand or Charcoal Drawing.

Elective for General Course Freshmen. Last seven weeks.

Four exercises per week. 2nd S.

ELECTRICAL ENGINEERING.

PROF. NESBIT, ASST. PROF. ADAMS, MR. COOPER.

Course numbers 1 to 40, inclusive, are reserved for subjects taken by Electrical Engineering Students; 41–50 for Mechanical Engineering Students; 51–60, Chemical Engineering Students; and 61–70 for Agricultural and General Course Students.

1. Direct Currents and Direct Current Dynamos. Prof. Nesbit.

This course is taken up upon completion of physics 5 and begins with the study of the magnetic field produced by permanent and electro magnets, the different forms of field magnets, the physical

theory of the dynamo and the calculations of the magnetic circuit. The next items are the choice of insulating materials and the copper for the coils, the consideration of armature reactions and the theory of commutation. Upon completion of the text on characteristic curves, a very thorough test is made of an Edison 3 K-W compound dynamo to determine its series—shunt and compound characteristics.

The text-book used in Courses 1 to 3 is S. P. Thompson's Dynamo Electric Machinery, Vol. 1, Direct Currents. Reference is made to other standard texts. For Electrical Engineering Juniors.

Three exercises per week. 1st S.

2. Direct Current Dynamos and Motors. Prof. Nesbit.

A continuation of Course 1.

The following subjects are taken up this term: The theory of armature winding and construction; mechanical points of design and construction; the various losses; and the design of closed coil types of dynamos. A careful study is made of arc lighting dynamos, machines for special purposes, direct current motors and their design, regulators, controllers and the management of dynamos and motors. For Electrical Engineering Juniors.

Two exercises per week. 2nd S.

3. Theoretical Electricity. Prof. Nesbit.

This course begins with the study of the fundamental and derived units, the latter of which include the electrostatic, the electromagnetic and practical systems, and their conversion factors. The general theorems of the electrostatic field are developed mathematically, the laws are stated and practical application is made of them in the design of commercial apparatus.

Following this part of the subject, a study is made of magnetism and the magnetic field due to magnets, magnetic shells and circuits traversed by electric currents.

The equivalence of magnetic shells and voltaic circuits is considered with regard to its important application in galvanometers, voltmeters, etc. The theory of measuring instruments of different types is studied in detail.

A large number of examples from Hooper and Wells' Electrical Problems are solved as a part of Courses 4 and 5. The text used in these courses is a set of notes based upon the work of Maxwell, Mascart et Joubert, Gray, J. J. Thomson, Gerard, Entage, Nipher, Foster, Jackson and others. For Electrical Engineering Juniors.

Three exercises per week. 1st S.

4. Theoretical Electricity. Prof. Nesbit.

This is a continuation of Course 3. The laws of series and parallel circuits, the laboratory methods of measuring the various electrical quantities, such as electromotive forces, resistances, capacities, permeability of iron, etc., the methods of standardizing instruments, the laws of electrolysis, thermo-electric currents, etc., constitute the subjects taken up in Course 4. For Electrical Engineering Juniors.

Four exercises per week. 2nd S.

5. Theoretical Electricity.—Alternating Currents and Alternating Current Machinery. Prof. Nesbit.

This course begins with the study of the properties of periodic curves, the average and virtual values of the ordinates of sine curves, followed by the development of general expressions for the instantaneous electromotive force impressed upon, and the energy spent in a series circuit, containing resistance R, self-induction L and capacity S, in terms of their components.

The phase relations of these component quantities are studied by plotting curves for a typical circuit of assumed data.

D. C. and J. P. Jackson's Alternating Currents and Alternating Current Machinery, S. P. Thompson's Alternating Currents and Franklin and Esty's Alternating Currents are the texts upon which Courses 5 and 6 are based.

Considerable time is spent in getting a correct knowledge of typical series and parallel circuits containing inductive and condenser reactances.

The solution of problems by the analytical and graphical methods, the methods of measuring inductances, power, etc., the magnetic circuit of alternators, the regulation efficiencies and losses of machines of different types receive due attention.

Foster's Electrical Engineer's Pocket Book is purchased by all Seniors. For Electrical Engineering Seniors.

Six exercises per week. 1st S.

6. Theoretical Electricity.—Alternating Currents and Alternating Current Machinery. Prof. Nesbit.

A detailed study of the transformer is made and formulæ of design are developed, which enable its operation to be predicted under various conditions. Jackson's text is used, in addition to notes from Bedell's and Fleming's works on the transformer.

This is followed by the study of Polyphase Electric Currents and Machinery, in which S. P. Thompson's book is used in class, along with that portion of Jackson's work on the same subject and Franklin and Esty's Alternating Currents. For Electrical Engineering Seniors. First ten weeks.

Five exercises per week. 2nd S.

7. Alternating Current Phenomena. Prof. Nesbit.

Steinmetz's text is used in class. For Electrical Engineering Seniors. Last seven weeks.

Five exercises per week. 2nd S.

20. The Telephone. Asst. Prof. Adams.

A course of lectures and recitations on the acoustic and electrical principles of telephony, the different forms of calling and receiving apparatus and accessories, and simple circuits constitute the introduction to the course. This is followed by a consideration of the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems.

Kempster B. Miller's American Telephone Practice is used as a text. For Electrical Engineering Seniors. First six weeks.

Three exercises per week. 1st S.

21. The Telegraph and Electric Signalling. Asst. Prof. Adams.

The work of this course consists of a careful study of the elementary electrical principles of telegraphy, the construction and connection of lines, repeaters, high speed telegraphy, simple and multiplex telegraphy, submarine signalling, automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy.

The text used is Maver's American Telegraphy. For Electrical Engineering Seniors. Seventh to twelfth week inclusive.

Three exercises per week. 1st S.

22. Electric Railroads and Power Distribution for Electric Railroads. Asst. Prof. Adams.

The chief items considered are the location of the power station as determined by economical questions, the fluctuations of load and their nature and magnitude, feeding and return systems,

boosters, substations, fast and heavy railway service, alternating current motors for railroads, car equipment, controllers, safety devices, line and track construction, operation and maintenance. In connection with this course, several exercises are devoted to electricity in mining. Reference is made to Bell's Power Distribution for Electric Railroads and other standard works as well as to the electrical journals. Lectures on the storage battery are included in this course together with discussions of the different types of cells, charging, discharging, their care and management, their commercial application for keeping the voltage constant at feeding centers, etc., and as sources of constant potential for laboratories.

Notes and references are used by the class. For Electrical Engineering Seniors. Last five weeks.

Three exercises per week. 1st S.

23. Electric Lighting. Asst. Prof. Adams.

This course covers such subjects as general electrical distributions for series and parallel systems, the development of wiring formulæ, the calculation of size of feeders and mains, the regulation of feeder voltages, two and three wire systems, overhead and underground conductors, a detailed study of the arc and incandescent lamps, alternating current systems of distribution by transformers, etc.

Crocker's Electric Lighting, Vol. II, is used as a text. For Electrical Engineering Seniors. First nine weeks.

Two exercises per week. 2nd S.

24. High Tension Power Transmission. Mr. Cooper.

The text-book used is High Tension Power Transmission, a set of papers compiled by the American Institute of Electrical Engineers, and published by the McGraw Co., N. Y. city. For Electrical Engineering Seniors. Last eight weeks.

Two exercises per week. 2nd S.

31. Electrical Laboratory.

Courses 15, 16 and 17 are consecutive and consist in the measurement of resistances, inductances, the calibration of a ballistic galvanometer and Ryan electrometer, the permeabilities of samples of iron. Tests are made on a small dynamo, connected to run as a direct current series, a shunt, or a compound motor to determine the speed, torque, current, output and efficiency curves

of motors. The determination of the candle power of incandescent and arc lamps, the calibration of resistances, the measurement of power in alternating current circuits, alternator characteristics, the running of synchronous motors, the load curves of a transformer, power measurement by a wattmeter and the study of polyphase machinery constitute the remainder of the course.

The laboratory manuals, upon which Courses 15, 16 and 17 are based, are Parr's Electrical Testing in Physics and Electrical Engineering, Nichols' Laboratory Manual in Physics and Applied Electricity, and Swenson and Frankenfield's Testing of Electro Magnetic Machinery, and Franklin and Esty's Dynamo Laboratory Manual. For Electrical Engineering Seniors.

Two exercises per week. 1st S.

32. Electrical Laboratory. Prof. Nesbit, Asst. Prof. Adams, Mr. Cooper.

This is a continuation of Course 31 and is chiefly devoted to alternating current work. For Electrical Engineering Seniors.

Two exercises per week. 2nd S.

33. Thesis. Prof. Nesbit, Asst. Prof. Adams, Mr. Cooper.

For Electrical Engineering Seniors.

Three exercises per week. 2nd S.

A deposit of fifteen dollars, to cover damages, breakages, etc., is required in Courses 31, 32 and 33. Any unexpended balance is refunded at the close of the college year. Where apparatus is constructed as a part of a thesis, it shall remain the property of the department.

41. The Elements of Electrical Engineering. Mr. Cooper.

Franklin and Estey's text, The Elements of Electrical Engineering, is used in Courses 41 to 42. These courses are similar, though briefer than 1 and 2. For Mechanical Engineering Juniors.

Three exercises per week. 1st S.

42. The Elements of Electrical Engineering. Mr. Cooper.

A continuation of 41. For Mechanical Engineering Juniors. First eight weeks.

Three exercises per week. 2nd S.

43. Alternating Currents. Mr. Cooper.

This is a brief course taken by Juniors of the Mechanical Engineering Course upon completion of Courses 41 and 42. The text-book used is Franklin and Williamson's Alternating Currents. Last nine weeks.

Three exercises per week. 2nd S.

44. Alternating Currents. Mr. Cooper.

This is a continuation of Course 43 and is taken by Seniors of the Mechanical Engineering Course. First eight weeks.

Three exercises per week. 1st S.

45. Applications of Electricity. Mr. Cooper.

This is a course of lectures on the telephone, telegraph, electric railroads, and power transmission, and is given to Seniors of the Mechanical Engineering Course upon completion of Courses 43 and 44. The subjects taken up in this course are more briefly treated than in Courses 20 to 24, inclusive. Last nine weeks.

Three exercises per week. 1st S.

51. Industrial Electricity. Mr. Cooper.

The principles and methods employed in electrical measurements, such as resistance of wires and batteries e. m. f. of cells, current measurement by ammeters and electrolysis, the use of the voltmeter, etc., will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps and the general principles of electrical distribution. Special attention is given to the needs of the chemical student. For Chemical Engineering Seniors.

Three exercises per week. 1st S.

52. Industrial Electricity. Mr. Cooper.

This is a continuation of Course 51. For Chemical Engineering Seniors.

Three exercises per week. 2nd S.

61. Industrial Electricity. Asst. Prof. Adams.

In an elementary way, study is made of such subjects as the dynamo, motor, transformer, telephone, telegraph, storage bat-

teries, incandescent and arc lighting, and electric railroads. D. C. Jackson's Elements of Electricity and Magnetism is used as an elementary text. Elective for General Course Seniors.

Three exercises per week. 1st S.

ENGLISH.

1. English Composition and Rhetoric. Assoc. Prof. Harrison, Mr. Spencer.

The theory of composition, theme writing, book reviews and an introduction to the principles of literary criticism. For Freshmen.

Three exercises per week. 1st S.

2. English Composition and Rhetoric. Assoc. Prof. Harrison, Mr. Spencer.

This is a continuation of Course 1.
Open to students who have completed Course 1.

Three exercises per week. 2nd S.

3. Advanced English Composition and Criticism. Mr. Spencer.

(a) Composition. The four forms of composition (narration, description, exposition and argumentation) will be taken up and practice given in each form. There will also be daily and weekly themes based on topics of the day (editorials), and on required readings. (Gardner's Forms of Prose Literature.)

(b) Criticism. The history of criticism will be studied briefly, each student having one novel and one poet to criticize. (Winchester's Principles of Literary Criticism). For Sophomores, Juniors and Seniors.

Three exercises per week. 1st S.

4. The English Drama. Mr. Spencer.

Lectures on the English drama, with required readings in Shakespeare, Sheridan and Goldsmith. There will also be recitations and discussions. Elective for Juniors and Seniors.

Three exercises per week. 2nd S.

5. The English Novel. Assoc. Prof. Harrison, Mr. Spencer.

Lectures on the development of the English novel. Outside readings, quizzes and discussions.

Three exercises per week. 1st S.

6. English Literature. Assoc. Prof. Harrison.

The historical development of English literature. This course is designed to set forth the philosophy of literature and the relation of writers to their predecessors and contemporaries. Text books, lectures and readings. For Agricultural and Chemical Seniors. Elective for General Course.

Three exercises per week. 2nd S.

7. American Literature. Prof. Scott.

Lectures with an extensive course of reading. Elective for General Course and Agricultural Seniors.

Four exercises per week. 2nd S.

FORESTRY.

PROF. HALL.

1. Arboriculture and Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops and climate; establishment and management of plantations and forest trees. For Agricultural Sophomores.

Three exercises per week. 2nd S.

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; estimating and measuring standing timber and harvesting

forest products, forest administration, laws and working plans. Seminary and laboratory work. Elective for Seniors who have shown special ability in Course 1.

Three exercises per week. 1st S.

FRENCH.

ASSOC. PROF. WHORISKEY, MR. SPENCER.

Courses 1 and 2 are taken in Freshman Year by students who offer German for admission.

1. Elementary French. Mr. Spencer.

Essentials of French grammar and reading, with practice in speaking and writing French. Dictation.

Three exercises per week. 1st S.

2. Elementary French. Mr. Spencer.

Reading of Modern French Prose; translation from English into French of connected narrative. Dictation.

Three exercises per week. 2nd S.

3. French Prose. Assoc. Prof. Whoriskey.

Reading and translation of French Prose, Composition, Poems.

Three exercises per week. 1st S.

4. French Prose, History and Travel.

Reading and Translation, Composition based on some book read in class.

Three exercises per week. 2nd S.

5. French Prose of Nineteenth Century. Assoc. Prof. Whoriskey.

Selections from Hugo, Balzac, Sand, Dumas père, Daudet will be read. Sight reading.

Three exercises per week. 1st S.

6. French Prose of Nineteenth Century. Assoc. Prof. Whoriskey.

Continuation of Course 5.

Three exercises per week. 2nd S.

*7. French Literature in the Seventeenth Century.

Corneille, Racine, Molière, Bossuet, Mme. de Sévigné, La Fontaine. *Three exercises per week. 1st S.*

*8. Continuation of Course 7.

Three exercises per week. 2nd S.

9. French Composition.

One and one-half exercises per week. 1st S.

10. French Composition.

One and one-half exercises per week. 2nd S.

GEOLOGY.

1. Mineralogy. Prof. Parsons.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Agricultural and Chemical Juniors. Elective. For General Course.

Open only to students who have taken Chemistry 1 and 2.

Two exercises per week. 2nd S.

2. Elementary Geology. Mr. Barrows.

A brief course in the elements of geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural and General Juniors.

Open to students who have completed Zoology 5.

Three exercises per week. 2nd S.

3. Historical Geology. Mr. Barrows.

The development of the continents of the earth and the evolution and distribution of the animal and plant forms from the

*Courses 5 and 6 are to be given in 1908-1909 and then in alternate years with 7 and 8.

earliest times to the present. Recitations, lectures and laboratory work. Elective for Agricultural and General Seniors.

Three exercises per week. 1st S.

GERMAN.

Assoc. Prof. Whoriskey, Mr. Spencer.

Courses 1 and 2 are taken in Freshman Year by students who offer French for admission. Courses 4 and 5 are taken by all Sophomores.

1. Elementary German. Assoc. Prof. Whoriskey, Mr. Spencer.

German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.

Three exercises per week. 1st S.

2. Elementary German. Assoc. Prof. Whoriskey, Mr. Spencer.

Continuation of Course 1. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading and Translation; Poems. Dictation.

Three exercises per week. 2nd S.

3. German Prose of the Nineteenth Century. Assoc. Prof. Whoriskey, Mr. Spencer.

Reading and Translation. Composition based on some book read in class.

Three exercises per week. 1st S.

4. Scientific German. Assoc. Prof. Whoriskey, Mr. Spencer.

Reading and Translation. Composition.

Three exercises per week. 2nd S.

*5. Goethe. Assoc. Prof. Whoriskey.

His Life and Works.

Three exercises per week. 1st S.

*6. Goethe. Assoc. Prof. Whoriskey.

Continuation of Course 5.

Three exercises per week. 2nd S.

*7. Schiller. Assoc. Prof. Whoriskey.

Life and Works.

Three exercises per week. 1st S.

*8. Schiller.

Continuation of Course 7.

Three exercises per week. 2nd S.

9. German Composition. Assoc. Prof. Whoriskey.

One and one-half exercises per week. 1st S.

10. German Composition. Assoc. Prof. Whoriskey.

One and one-half exercises per week. 2nd S.

HISTORY.

PROF. SCOTT.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 and 2 and Courses 3 and 4 are given on alternate years. Courses 1 and 2 are offered in 1908–'09.

Courses 1 to 4 are open only to students who have passed in Ancient History.

* Courses 5 and 6 are to be given in 1907-08 and then in alternate years with 7 and 8.

Courses 5 to 7 are open only to students who have passed in the History and Constitution of the United States.

1. History of Europe from 476 to 1492.

Recitations and collateral reading. For General Course Freshmen and Sophomores.

Three exercises per week. 1st S.

2. History of Europe from 1492 to 1715.

Recitations and collateral reading. For General Course Freshmen and Sophomores.

Three exercises per week. 2nd S.

3. History of Europe from 1715 to 1815. The French Revolution.

Recitations and collateral reading. For General Course Freshmen and Sophomores.

Three exercises per week. 1st S.

4. History of Europe since 1815.

Recitations and collateral reading. For General Course Freshmen and Sophomores.

Three or four exercises per week. 2nd S.

5. American History to 1783.

For General Course Juniors and Agricultural Seniors.

Three exercises per week. 1st S.

6. Political and Constitutional History of the United States from 1783 to 1837.

For General Course Juniors and Agricultural Seniors.

Three exercises per week. 2nd S.

7. Political and Constitutional History of the United States since 1837.

For General Course Seniors.

Three exercises per week. 1st S.

HORTICULTURE.

PROF. HALL.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into four classes, viz.: (1) Pomology, or fruit growing; (2) Olericulture, or vegetable gardening; (3) Floriculture, or flower growing; and (4) Landscape Gardening.

1. Principles of Horticulture.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests and the scope and importance of its field. For Agricultural Freshmen. First eight weeks.

Three exercises per week. 1st S.

2. Olericulture.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables is also considered. For Agricultural Freshmen.

Open only to those who have completed Hort. 1.

Two exercises per week. 2nd S.

3. Greenhouse Management.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study is made of the history and development of different types of greenhouses, including methods of heating and general management. Elective for Agricultural Juniors.

Three exercises per week. 2nd S.

4. Pomology and Viticulture.

The culture, classification and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both

the large or orchard fruits and the small or berry fruits. Lectures, recitations and laboratory work. For Agricultural Juniors.

Open only to students who have completed Botany 1 and Zoology 3.

Three exercises per week. 1st S.

5. Landscape Gardening.

Lectures, recitations and laboratory work on the principles of æsthetics as applied to natural scenery; designing, mapping, staking out and planting private and public grounds, parks, cemeteries, etc., are studied and practised. Elective for Agricultural Seniors.

Three exercises per week. 1st S.

6. Plant Breeding.

This course takes up the evolutionary study of plant life and points out through examples, largely of economic horticultural plants, their modification and improvement by mutation, crossing, dwarfing, forcing, etc. Recitations and seminary work. Elective for Agricultural Seniors.

Three exercises per week. 2nd S.

7. Advanced Horticulture.

This course consists of special advanced work arranged to suit the needs of individual students. Elective for Agricultural Seniors.

Open to students who have completed Courses 1 to 4 inclusive.

Two exercises per week. 2nd S.

MACHINE DESIGN.

PROF. PUTNAM.

All students electing the following courses are required to purchase a copy of Kent's "Handbook."

1. Elementary Machine Design.

This course consists largely of the application of the principles of mechanism and mechanics already learned to the solution of problems in design. For Engineering Juniors.

Two exercises per week. 1st S.

2. Elementary Machine Design.

Continuation. The number of designs is such as to include most of the elementary principles of design, yet is sufficiently limited so as to enable the student to complete thoroughly every detail. The designs include calculations on frame design, cylinders and pipes, fastenings, springs, journals, pivots and bearings, shafting, couplings and hangers, gears, pulleys and cranks, and transmission by belts and ropes; also engine details and valve gear problems. For Engineering Juniors.

Two exercises per week. 2nd S.

3. Advanced Machine Design.

The designing of boilers, shaft-couplings, pulleys, etc., having regard to the principles of applied mechanics and strength of materials, with complete working drawings in each case. For Mechanical Engineering Seniors.

Open to students who have completed Machine Design 2 and Mechanical Engineering 5 and 7 to 10.

Four exercises per week. 1st S.

4. Mill Engineering Design.

Figuring for strength of flooring, beams, brick and stone work in a mill storehouse, with drawings of same. This course includes also the study of mill and building construction, with an option on the design of a cotton mill or machine shop. Complete with designs of the power plant and determination of cost of power. For Mechanical Engineering Seniors.

Four exercises per week. 2nd S.

MATHEMATICS.

Prof. Pettee, Mr. Cooper, Mr. Laton.

1. Algebra Completed. Prof. Pettee, Mr. Cooper.

For all Freshmen.

Four exercises per week. 1st S.

2. Solid Geometry, with advanced course.

For Freshmen entering without the subject.

Two exercises per week. 1st S.

3. Plane and Spherical Trigonometry. Prof. Pettee, Mr. Cooper.

For all Freshmen. First ten weeks.

Four exercises per week. 2nd S.

4. Surveying. Prof. Pettee.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. Required of Engineering, Chemical and Agricultural Freshmen. Elective for General Course Freshmen. Last seven weeks. *Four exercises per week. 2nd S.*

5. Analytical Geometry. Prof. Pettee, Mr. Cooper.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores. *Five exercises per week. 1st S.*

6. Differential and Integral Calculus. Prof. Pettee, Mr. Cooper.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores. *Five exercises per week. 2nd S.*

7. Differential Equations. Prof. Pettee.

Elective for General Juniors.

Two exercises per week. 1st S.

8. Quaternions. Prof. Pettee.

Elective for General Juniors.

Two exercises per week. 2nd S.

9. Astronomy. Prof. Pettee.

Elective for General Juniors and Seniors.

Two exercises per week. 2nd S.

MECHANICAL ENGINEERING.

PROF. READ, PROF. PUTNAM, MR. LATON.

1. Mechanism. Prof. Putnam.

Recitations and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms and modes of connection. For Engineering Sophomores.

Open only to students who have completed Mathematics 1–2.

Three exercises per week. 1st S.

2. Mechanism. Prof. Putnam.

For Engineering Sophomores.
Continuation of 1. First ten weeks.

Three exercises per week. 2nd S.

3. Elementary Steam Engineering. Prof. Putnam.

For Engineering Sophomores. Last seven weeks.

Three exercises per week. 2nd S.

4. Mechanics of Engineering. Mr. Laton.

Courses 4, 5 and 6 are devoted to recitations in statics and dynamics. For Engineering and Chemical Juniors. First ten weeks.

Courses 4 to 6 are open only to students who have completed Mathematics 1 to 7, inclusive, and Physics 1.

Four exercises per week. 1st S.

5. Mechanics of Engineering. Prof. Read.

Continuation of 4.

Four exercises per week. 2nd S.

6. Graphic Statics. Prof. Putnam.

For Engineering and Chemical Juniors. Last seven weeks.

Four exercises per week. 1st S.

7. Steam Engineering. Prof. Read.

Recitations and lectures on thermodynamics. For Engineering Juniors and Chemical Seniors.

Course 7 is open only to students who have completed Mathematics 1–7, Physics 1 and 2, Drawing 1 to 3.

Four exercises per week. 1st S.

8. Steam Engineering. Mr. Laton.

Continuation of Course 7. Recitations and lectures on boilers. First eight weeks.

Four exercises per week. 2nd S.

9. Steam Engineering. Mr. Laton.

Continuation of Courses 7 and 8. Recitations and lectures on valve gears. Last nine weeks.

Four exercises per week. 2nd S.

10. Materials of Construction. Prof. Read.

Recitations on the production, properties, uses and preservation of engineering materials. For Engineering Seniors.

Continuation of Courses 4 and 5.

Course 10 is open only to students who have completed Courses 4, 5 and 6.

Four exercises per week. 1st S.

11. Hydraulics. Prof. Read.

For Engineering Seniors.

Open only to students who have completed Courses 4 and 5.

Three exercises per week. 1st S.

12. Mechanical Laboratory. Prof. Read.

Tests of materials, boilers, engines, pumps, indicators, etc. For Engineering Seniors.

Course 12 is open only to students who have completed Courses 1 to 9 and must have completed or are completing Courses 10 and 11.

Three exercises per week. 1st S.

13. Mechanical Laboratory. Prof. Read.

Continuation of Course 12.

Two exercises per week. 2nd S.

14. Multiple Expansion Engines. Prof. Read.

For Engineering Seniors. First nine weeks.

Open only to students who have completed Courses 4, 5, 7 to 9 and 12.

Four exercises per week. 2nd S.

15. Gas and Hot Air Engines and Refrigerating Machinery. Prof. Read.

For Engineering Seniors. Last eight weeks.

Open only to students who have completed Courses 4, 5, 7 to 9, 12, 13 and 14.

Four exercises per week. 2nd S.

16. Contracts and Specifications. Prof. Putnam.

Recitations and lectures on the laws and forms of engineering contracts and specifications. Students in this course are required to draw up specifications, write a contract and make estimates on a piece of engineering work.

For Mechanical Engineering Seniors.

Two exercises per week. 1st S.

17. Hydraulic Motors. Prof. Read.

Principles of design and operation of water power plants. For Mechanical Engineering Seniors. First nine weeks.

Course 17 is open only to students who have completed Course 11.

Two exercises per week. 2nd S.

18. Concrete-Steel Construction. Prof. Read.

A study, from the current engineering papers, of the more recent developments in the design and construction of concrete-steel foundations, dams and buildings. For Mechanical Engineering Seniors. Last eight weeks.

Course 18 is open only to those who have taken Course 10.

Two exercises per week. 2nd S.

METEOROLOGY.

1. Meteorology. Prof. Pettee.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural and General Seniors.

Two exercises per week. 1st S.

MILITARY SCIENCE AND TACTICS.

LIEUT. HUNT.

Each male student, unless a member of the Senior Class, or physically unfit, is required to drill and attend recitations in Military Science.

Military Science 1 to 8 inclusive consists of Military Drill and includes all the practical instruction in the following subjects: Advance and Rear Guards, Outposts, Marches, Ceremonies, Battalion Review, Parades and Guard Mounting, Calisthenics and Gymnastics, Rifle Practice, First Aid to the Injured.

1. Military Drill.

For Freshmen. *Two exercises per week. 1st S.*

2. Military Drill.

Continuation of Course 1.

Two exercises per week. 2nd S.

3. Military Drill.

For Sophomores. *Two exercises per week. 1st S.*

4. Military Drill.

Continuation of Course 3. For Sophomores.

Two exercises per week. 2nd S.

5. Military Drill.

For Juniors. *Two exercises per week. 1st S.*

6. Military Drill.

Continuation of Course 5. For Juniors.

Two exercises per week. 2nd S.

7. Military Drill.

Elective for Seniors only.

Two exercises per week. 1st S.

8. Military Drill.

Continuation of Course 5. Elective for Seniors only.

Two exercises per week. 2nd S.

9. Infantry Drill Regulations.

Practical instruction and lectures. For Freshmen.

One exercise per week. 1st S.

10. Manual of Guard Duty and Small Arms Firing Regulations.

For Freshmen.

One exercise per week. 2nd S.

11. Security and Information.

For Sophomores.

One exercise per week. 1st S.

12. Military Map Reading and Sketching.

For Sophomores.

One exercise per week. 2nd S.

13. Field Service Regulations.

Preparation of problems requiring the issuing of field orders,* knowledge of marches, transportation, subsistence, etc. For Juniors.

One exercise per week. 1st S.

14. Army Regulations and Preparation of Requisitions, etc.

For Juniors.

One exercise per week. 2nd S.

15. Army Organization and Administration.

Lectures and preparation of military papers. Elective for Seniors only.

One exercise per week. 1st S.

16. Army Organization and Administration.

Continuation of Course 15. Elective for Seniors only.

One exercise per week. 2nd S.

PHILOSOPHY.

ASSOC. PROF. HARRISON.

1. Psychology.

An introduction to the study of mental life. The practical needs of the student are related as closely as possible to the work of the course. For Sophomores and Seniors.

Three exercises per week. 1st S.

*2. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers: Comemius, Rousseau, Pestalozzi, Froebel, Spencer and Herbart. For Juniors and Seniors.

Three exercises per week. 1st S.

*3. Philosophy of Education.

The meaning of education is defined from the aspect of the biological, the physiological, the social, the psychological and the philosophical. Horne's Philosophy of Education. For Juniors and Seniors.

Three exercises per week. 2nd S.

*4. Educational Theory and Practice.

The method of the recitation with practical applications; free discussions of the teacher's problems; the meaning and aim of education. Practice work for the students who wish it is found in the public schools at and near Durham. Extra credit is given for practice teaching. For Juniors and Seniors.

Three exercises per week. 1st S.

*5. Introduction to Philosophy.

A general survey of the field of philosophy with special reference to the definition of its problems, its spirit, its method and its relation to the various sciences: the theory of thought and knowledge; the doctrine of nature and of mind. This course aims to acquaint students with the ultimate problems of thought and to suggest possible solutions. For Juniors and Seniors.

Three exercises per week. 2nd S.

PHYSICS.

PROF. NESBIT, ASST. PROF. ADAMS.

Courses 1 to 5 are taken consecutively by students of the Electrical and Mechanical Engineering Courses. Students in the Chemical Engineering Course take Courses 1, 2 and 6. Students in the Agricultural and General Courses take Courses 1 and 2. Course numbers 1–40 inclusive are reserved for the subjects taken by students in the Engineering Courses.

1. Mechanics and Heat.

Mechanics: The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems.

It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics.

*Courses 2 and 4 and 3 and 5 are given in alternate years.

Instruction is given by lectures, recitations and problem work. The text used is Ganot's Physics. Reference is made to Ames' Theory of Physics, Watson's Physics and other standard treatises.

The Electrical and Mechanical Students take up the use of the Slide Rule in connection with this course. Slide Rules should not be bought except upon advice of the instructor.

Heat: The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermo-dynamics. Ganot's Physics is used as a text. For Engineering Sophomores.

Three exercises per week. 1st S.

2. Light, Sound and Electricity.

Light: The subject is approached from the geometrical and physical standpoint. A number of experiments are performed, illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based.

The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena.

The student makes a careful study of optical instruments of all classes. Ganot's Physics is used as the text.

Sound: The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech.

The text used is Stone's Elementary Lessons in Sound.

Electricity and Magnetism: Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's Elementary Lessons in Electricity and Magnetism is used as a text. This course is required as a preparation for Electrical Engineering 1 to 4 and 22 to 23. For Sophomores.

Three exercises per week. 2nd S.

3. Elements of Least Squares and the Precision of Measurements.

This course is intended to serve as an introduction to the work in the Physical Laboratory. It familiarizes the student with the

precautions necessary in taking experimental data and of properly using his data in order to secure the most reliable results.

A large number of problems are solved, illustrating the determination of physical constants and in deducing the constants of empirical equations. Bartlett's Least Squares is used as a text in Least Squares. The work in Precision of Measurements consists of a course of lectures and the solution of a number of problems illustrating the application of the subject. For Engineering Juniors.

Two exercises per week. 1st S.

4. Physical Laboratory.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Watson, Ames and Bliss, E. L. Nichols, H. M. Godwin and others.

The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation.

A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements. The student has practice in the calibration of galvanometers and ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Course 5, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself. For Engineering Juniors.

One exercise per week. 1st S.

5. Physical Laboratory.

A continuation of Course 4. For Engineering Juniors.

Three exercises per week. 2nd S.

A fee of five dollars per term is required in Courses 4 and 5 to cover breakages, etc. Any unexpended balance is refunded to the student at the close of the college year.

6. Physical Laboratory.

Physical Laboratory work. Similar to Courses 4 and 5. For Chemical Juniors.

Three exercises per week. 1st S.

POLITICAL SCIENCE.

PROF. SCOTT.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day. For General Course Sophomores, Agricultural Juniors and Engineering and Chemical Seniors.

Three exercises per week. 2nd S.

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases. For General Course Juniors and Seniors and Agricultural Seniors.

Three exercises per week. 1st S.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history. For General Course and Agricultural Seniors.

Three exercises per week. 1st S.

4. Money and Banking.

Recitations, readings and lectures. For Agricultural Seniors and General Course Juniors and Seniors.

Courses 4 and 5 are given in alternate years. Course 4 will be offered in the year 1908–'09.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

5. Public Finance.

Recitations, readings and lectures. For Agricultural Seniors and General Course Juniors and Seniors.

Courses 4 and 5 are given in alternate years. Course 5 will be offered in the year 1909–'10.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

SHOP WORK.

DIRECTOR, PROF. READ, MR. BROWN, MR. INGHAM.

Three hours' work in the shop is reckoned as one exercise.

1. Wood Work. Mr. Ingham.

Exercises in carpentry work, joinery and pattern making.

Engineering Freshmen.

Two and one-half exercises per week. 1st S.

General Course Freshmen.

Two exercises per week. 1st S.

2. A Course in Forging, Giving the student Exercises in Upsetting, Drawing, Forming and Welding. Mr. Brown.

For Engineering Freshmen. Division 2. First ten weeks.

Two exercises per week. 2nd S.

3. Same as Course 2.

For Mechanical and Electrical Engineering Sophomores who have completed Chemistry 4.

Two exercises per week. 1st S.

4. A Course in Turning, Facing, Thread Cutting, Milling, Shaping, Scraping, Filing and Planing. Mr. Brown.

For Mechanical and Electrical Engineering Sophomores.

Two and one-half exercises per week. 2nd S.

5–8. A Course in Machine Shop Tools and Methods. Mr. Brown.

For Mechanical Engineering Juniors and Seniors.

Considerable time is given to tool room work in the making of fine tools, such as arbors and gauges; grinding both external and internal; tempering; the use of the electric pyrometer in connection with tempering and annealing; the use of the milling machine in connection with spiral and gear cutting; bench work in fine fitting; experimental work as to different cutting speeds and angles for various forms of tools as well as with different grades of tool steel, including high speed steel. Metallography of the heat treatment of steel.

A portion of the time is taken up in the reading and discussion of the various engineering periodicals, and excursions are made to large shops so that the student has an opportunity to see the above processes in practical operation.

5. Shop Work. Mr. Brown.

For Mechanical Engineering Juniors.

Two exercises per week. 1st S.

6. Shop Work. Mr. Brown.

For Mechanical Engineering Juniors.

Two exercises per week. 2nd S.

7. Shop Work. Mr. Brown.

For Mechanical Engineering Seniors.

Two exercises per week. 1st S.

8. Shop Work. Mr. Brown.

For Mechanical Engineering Seniors.

Two exercises per week. 2nd S.

11. Special Shop Work.

Work arranged to suit the needs of particular students.

12. Special Shop Work.

13. Wood Shop. Mr. Ingham.

Same as Course 1. For Agricultural Freshmen. Last nine weeks.

One and one half exercises per week. 1st S.

14. Forging. Mr. Brown.

For Agricultural Freshmen.

Two exercises per week. 2nd S.

15. Machine Shop. Mr. Brown.

Same as Course 4. For Chemical Seniors.

Two exercises per week. 1st S.

SPANISH.

Mr. Spencer.

†1. Elementary Spanish.

Essentials of Spanish Grammar. Translation of modern Spanish prose. Stories and plays by modern authors will be read. Elective for General Course Students in Sophomore, Junior or Senior Year.

Three exercises per week. 1st S.

†2. Elementary Spanish.

Continuation of Course 1. Elective for General Course Students in Sophomore, Junior or Senior Year.

Three exercises per week. 2nd S.

ZOOLOGY.

Prof. Sanderson, Mr. Barrows, Mr. Spooner.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teach-

†To be given only when elected by six or more students.

ing or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary. See Biological Division, Agricultural Course, page .

1. General Entomology.

A general survey of the structure, habits and classification of the different orders of insects. Lectures, laboratory dissections and classification. For Agricultural and General Sophomores.

Three exercises per week. 1st S.

2. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories, habits and methods of combating them. Special consideration of general farm methods for control of insects affecting staple crops and of spraying, machinery and insecticides for combating truck and fruit insects. For Agricultural and General Sophomores completing Course 1.

Three exercises per week. 2nd S.

3. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, general physiology of higher animals, and laboratory dissections of a few typical forms. For Agricultural and General Juniors.

Four exercises per week. 1st S.

4. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests. For Agricultural Juniors or Seniors having completed Course 2.

Three exercises per week. 2nd S.

5. Advanced Entomology.

Advanced work in General Entomology; collecting, classification and anatomical studies. For students having completed Course 1.

Three exercises per week. 2nd S.

*6. Invertebrate Zoölogy.

The structure and life of the invertebrate animals, except insects. Lectures and laboratory dissections of typical forms. Elective for Agricultural Seniors and General Course Students.

Four exercises per week. 1st S.

†7. General Physiology.

The vital phenomena of animal life with special reference to the nervous, digestive, muscular, secretory and sensory processes in the higher animal forms. For Agricultural and General Course Juniors or Seniors.

Three exercises per week. 2nd S.

8. Evolution.

Lectures taking up the problems of variation, heredity, breeding, and selection from an experimental standpoint, and discussions of recent theories with their bearings on the question of evolution. This course is a basis for advanced work in plant and animal breeding. Required of Agricultural Seniors, elective in General Course.

Three exercises per week. 1st S.

10 and 11. Advanced Zoölogy.

Three or four exercises per week for the year. For students who elect Zoölogy for Senior year to be arranged to suit individual needs. Open to students who have completed previous courses and have shown proficiency in Zoölogy.

†12. Biological Seminar.

Reports and discussions upon current literature of Zoölogy and Botany, special topics and observations. For Agricultural and General Juniors and Seniors.

One hour per week through the year.

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† To be given only when elected by four or more students.

FOUR-YEAR COURSES.

COURSES OF STUDY AND SCHEDULE OF HOURS.

(For details see Description of Studies.)

Attendance at Chapel exercises is required of all students and attendance at Military Drill is required of all male students, except Seniors.

AGRICULTURAL COURSE.

Freshman Year.

FIRST SEMESTER.

		Credit hours
Chemistry 1	Inorganic Chemistry	3
Drawing 1	Industrial Drawing	2
English 1	English Composition and Rhetoric	3
French 1 or *German 1*	Elementary French / Elementary German	3
Horticulture 1	Principles of Horticulture (first eight weeks)	1½
Mathematics 1	Algebra	4
**Mathematics 2*	Solid Geometry	2
Military Science 1	Drill	1
Military Science 9	Infantry Drill Regulations	1
Shop Work 13	Wood Shop (last nine weeks)	1½

SECOND SEMESTER.

Chemistry 2	Inorganic Chemistry	2
Drawing 4	Design of Farm Buildings	2
English 2	English Composition and Rhetoric	3
French 2 or *German 2*	Continuation of French 1 / Continuation of German 1	3
Horticulture 2	Olericulture	2
Mathematics 3	Trigonometry (first ten weeks)	2½
Mathematics 4	Surveying (last seven weeks)	1½
Military Science 2	Drill	1

* May be taken as an elective in addition to required work by students entering without the subject.

Military Science 10	Manual of Guard Duty, etc.	1
Shop Work 14	Forge Shop	2

SOPHOMORE YEAR.

FIRST SEMESTER.

Agriculture 8	Breeds of Livestock.....	3
Botany 3	General Botany	3
Chemistry 4	Qualitative Analysis	3
German 3	German Prose of the Nineteenth Century	3
Military Science 3	Drill	1
Military Science 11	Security and Information	1
Physics 1	Mechanics and Heat	3
Zoölogy 1	General Entomology	3

SECOND SEMESTER.

Botany 4	General Botany	3
Chemistry 6	Organic Chemistry	3
Forestry 1	Arboriculture and Forestry	3
German 4	Scientific German	3
Military Science 4	Drill	1
Military Science 12	Military Map Reading and Sketching	1
Physics 2	Light, Sound and Electricity	3
Zoölogy 2	Economic Entomology	3

JUNIOR YEAR.

FIRST SEMESTER.

Agriculture 1	Farm Equipment	3
Agriculture 9	Principles of Breeding	2
**Botany 5* or	Plant Pathology	4
**Zoölogy 3*	Vertebrate Anatomy and Physiology	4
Chemistry 7	Chemistry of Plant and Animal Nutrition	2
Dairying 1	Farm Dairying	4
Horticulture 4	Pomology	3
Military Science 5	Drill	1
Military Science 13	Field Service Regulations	1

*Botany 5 should be elected by students intending to specialize in Horticulture.

* Zoölogy 3 should be elected by those intending to specialize in Animal Husbandry or Zoölogy.

SECOND SEMESTER.

Agriculture 2	Soils	3
Agriculture 10	Stock Feeding	3
**Agriculture 11*	Veterinary Science	3
**Botany 6* or	Mycology	3
**Botany 8*	Plant Histology	
Geology 1	Mineralogy	2
Geology 2	Elementary Geology	3
**Horticulture 3*	Greenhouse Management	3
Military Science 6	Drill	1
Military Science 14	Army Regulations	1
Political Science 1	Political Economy	3
**Zoölogy 4* or	Advanced Economic Entomology	3
**Zoölogy 5* or	Advanced Entomology	
**Zoölogy 7*	General Physiology	

SENIOR YEAR.

FIRST SEMESTER.

		Credit hours
Agriculture 5	Agricultural Seminar	2
History 5	American History to 1783	3
Meteorology 1	Meteorology	2
Thesis		2
Zoölogy 8	Evolution	3
Elective Courses		5

SECOND SEMESTER.

Agriculture 6	Agr. History and Economics (first nine weeks)	2
Agriculture 7	Farm Mechanics (last eight weeks)	2
English 6	English Literature	3
History 6	Const. and Political History of U. S. (1783–1837)	3
Thesis		2
Elective Courses		6

During the Junior Year students who desire and are qualified to take up work in the Biological or Chemical Divisions of the Agricultural Course may substitute work in these divisions for Dairying 1 and Agriculture 10.

*Elective.

ENGINEERING COURSES.

Freshman Year.

FIRST SEMESTER.

Chemistry 1	Inorganic Chemistry	3
Drawing 1	Industrial Drawing	2½
English 1	English Composition and Rhetoric	3
French 1 or *German 1*	Elementary French / Elementary German	3
Mathematics 1	Algebra	4
†*Mathematics 2*	Solid Geometry	2
Military Science 1	Drill	1
Military Science 9	Infantry Drill Regulations	1
Shop Work 1	Wood Work	2½

SECOND SEMESTER.

Chemistry 2	Inorganic Chemistry	2
Chemistry 4	Qualitative Analysis (first division)	3
Drawing 2	Descriptive Geometry (first division)	3
Drawing 2	Descriptive Geometry (second division), (first ten weeks)	2
Drawing 3	Continuation of Drawing 2 (second division), (last seven weeks)	2
English 2	English Composition and Rhetoric	3
French 2 or *German 2*	Continuation of French 1 / Continuation of German 1	3
Mathematics 3	Trigonometry (first ten weeks)	2½
Mathematics 4	Surveying (last seven weeks)	1½
Military Science 2	Drill	1
Military Science 10	Manual of Guard Duty, etc.	1
Shop Work 2	Forging (second division) (first ten weeks)	2

† For Freshmen entering without the subject.

CHEMICAL ENGINEERING COURSE.

Sophomore Year.

FIRST SEMESTER.

		Credit hours
Chemistry 5	Qualitative Analysis (first five weeks)	1½
Chemistry 10	Quantitative Analysis (last twelve weeks)	3½
Drawing 7	Elementary Machine Drawing and Free Hand Drawing of Chem. Apparatus	2
German 3	German Prose of the Nineteenth Century	3
Mathematics 5	Analytic Geometry	5
Military Science 3	Drill	1
Military Science 11	Security and Information	1
Physics 1	Mechanics and Heat	3

SECOND SEMESTER.

Chemistry 6	Organic Chemistry	3
Chemistry 11	Quantitative Analysis	6
German 4	Scientific German	3
Mathematics 6	Calculus	5
Military Science 4	Drill	1
Military Science 12	Military Map Reading and Sketching	1
Physics 2	Light, Sound and Electricity	3

Junior Year.

FIRST SEMESTER.

Chemistry 7	Chemistry of Plant and Animal Nutrition	2
Chemistry 12	Advanced Quantitative Analysis	5
Chemistry 19	Chemical Journals	2
Chemistry 21	Physical Chemistry (in alternate years)	2
Mech. Engineering 4	Mechanics of Engineering (first) ten weeks	3
Mech. Engineering 6	Graphic Statics (last seven weeks)	
Military Science 5	Drill	1
Military Science 13	Field Service Regulations	1
Physics 6	Physical Laboratory	3

SECOND SEMESTER.

		Credit hours.
Chemistry 8	Organic Chemical Laboratory ...	3
Chemistry 13	Advanced Quantitative Analysis.	4
†*Chemistry 14* and	Industrial Chemistry	2
†*Chemistry 15* or	Metallurgy	1
†*Chemistry 22*	Physical and Electro-chemistry	3
Chemistry 20	Chemical Journals	2
Geology 1	Mineralogy	2
Mech. Engineering 5	Mechanics of Engineering	4
Military Science 6	Drill	1
Military Science 14	Army Regulations	1

SENIOR YEAR.

FIRST SEMESTER.

Chemistry 21	Physical Chemistry (in alternate years)	2
Chemistry 23	Chemical Research and Thesis...	8
Elect. Engineering 51	Industrial Electricity	3
Mech. Engineering 7	Steam Engineering	4
**Military Science 7*	Drill	1
**Military Science 15*	Army Organization and Administration	1
Shop Work 15	Machine Shop	2

SECOND SEMESTER.

†*Chemistry 14* and	Industrial Chemistry	2
† *Chemistry 15* or	Metallurgy	1
†*Chemistry 22*	Physical and Electro-chemistry	3
Chemistry 16	Assaying	1
Chemistry 24	Thesis	8
Elect. Engineering 52	Industrial Electricity	3
English 6	English Literature	3
**Military Science 8*	Drill	1
**Military Science 16*	Army Organization and Administration	1
Political Science 1	Political Economy	3

† Given in alternate years.
* Elective.

ELECTRICAL AND MECHANICAL ENGINEERING COURSES.

Sophomore Year.

FIRST SEMESTER.

		Credit hours.
Chemistry 4	Qualitative Chemical Analysis...	3
Drawing 5	Descriptive Geometry (first division) (first seven weeks)....	1
**Drawing 6*	Elementary Machine Drawing (first division), (last ten weeks)	1½
Drawing 6	Elementary Machine Drawing (second division)	2
German 3	German Prose of the Nineteenth Century	3
Mathematics 5	Analytic Geometry	5
Mech. Engineering 1	Mechanism	3
Military Science 3	Drill	1
Military Science 11	Security and Information.....	1
Physics 1	Mechanics and Heat.....	3
†Shop Work 3	Forging (first division).....	2

SECOND SEMESTER.

Drawing 8	Machine Drawing	2½
German 4	Scientific German	3
Mathematics 6	Calculus	5
Mech. Engineering 2	Mechanism (first ten weeks)....	3
Mech. Engineering 3	Elementary Steam Engineering (last seven weeks).....	
Military Science 4	Drill	1
Military Science 12	Military Map Reading and Sketching	1
Physics 2	Light, Sound and Electricity.....	3
Shop Work 4	Machine Shop	2½

ELECTRICAL ENGINEERING COURSE.

Junior Year.

FIRST SEMESTER.

		Credit hours.
Elect. Engineering 1	Direct Currents and Dynamos...	3
Elect. Engineering 3	Theoretical Electricity	3

† For Students who have taken Chemistry 4.
* Elective.

		Credit hours.
Machine Design 1	Elementary Machine Design.....	2
Mech. Engineering 4	Mechanics of Engineering (first ten weeks)	2½
Mech. Engineering 6	Graphic Statics (last seven weeks)	1½
Mech. Engineering 7	Steam Engineering	4
Military Science 5	Drill	1
Military Science 13	Field Service Regulations	1
Physics 3	Least Squares	2
Physics 4	Physical Laboratory	1

SECOND SEMESTER.

Elect. Engineering 2	Direct Current Dynamos and Motors	2
Elect. Engineering 4	Theoretical Electricity	4
Machine Design 2	Elementary Machine Design.....	2
Mech. Engineering 5	Mechanics of Engineering.....	4
Mech. Engineering 8	Steam Engineering (first eight weeks)	4
Mech. Engineering 9	Steam Engineering (last nine weeks)	
Military Science 6	Drill	1
Military Science 14	Army Regulations	1
Physics 5	Physical Laboratory	3

SENIOR YEAR.

FIRST SEMESTER.

Elect. Engineering 5	Theoretical Electricity	6
Elect. Engineering 20	Telephone (first six weeks).....	1
Elect. Engineering 21	Telegraph (seven-twelve weeks)	1
Elect. Engineering 22	Electric Railroads etc. (last five weeks)	1
Elect. Engineering 31	Electrical Laboratory	2
Mech. Engineering 10	Materials of Construction.....	4
Mech. Engineering 11	Hydraulics	3
Mech. Engineering 12	Mechanical Laboratory.....	3
**Military Science 7*	Drill	1
**Military Science 15*	Army Organization and Administion	1

SECOND SEMESTER.

Elect. Engineering 6	Theoretical Electricity (first ten weeks)	3

* Elective.

		Credit hours.
Elect. Engineering 7	Alternating Current Phenomena (last seven weeks)	2
Elect. Engineering 23	Electric Lighting (first nine weeks)	1
Elect. Engineering 24	High Tension Power Transmission (last eight weeks)	1
Elect. Engineering 32	Electrical Laboratory	2
Elect. Engineering 33	Thesis	3
Mech. Engineering 13	Mechanical Laboratory	2
Mech. Engineering 14	Multiple Expansion Engines (first nine weeks)	2
Mech. Engineering 15	Gas, Hot Air Engines and Refrigerating Machinery (last eight weeks)	2
**Military Science 8*	Drill	1
**Military Science 16*	Army Organization and Administration	1
Political Science 1	Political Economy	3

MECHANICAL ENGINEERING COURSE.

Junior Year.

FIRST SEMESTER.

		Credit hours.
Elect. Engineering 41	Elements of Electrical Engineering	3
Machine Design 1	Elementary Machine Design	2
Mech. Engineering 4	Mechanics of Engineering (first ten weeks)	2½
Mech. Engineering 6	Graphic Statics (last seven weeks)	1½
Mech. Engineering 7	Steam Engineering	4
Military Science 5	Drill	1
Military Science 13	Field Service Regulations	1
Physics 3	Least Squares	2
Physics 4	Physical Laboratory	1
Shop Work 5	Machine Shop	2

SECOND SEMESTER.

Elect. Engineering 42	Elements of Electrical Engineering (first eight weeks)	1½

* Elective.

		Credit hours.
Elect. Engineering 43	Alternating Currents (last nine weeks)	1½
Machine Design 2	Elementary Machine Design	2
Mech. Engineering 5	Mechanics of Engineering	4
Mech. Engineering 8	Steam Engineering (first eight weeks)	2
Mech. Engineering 9	Steam Engineering (last nine weeks	2
Military Science 6	Drill	1
Military Science 14	Army Regulations	1
Physics 5	Physical Laboratory	3
Shop Work 6	Machine Shop	2

SENIOR YEAR.

FIRST SEMESTER.

Elect. Engineering 44	Alternating Currents (first eight weeks)	1½
Elect. Engineering 45	Applications of Electricity (last nine weeks)	1½
Machine Design 3	Advanced Machine Design	4
Mech. Engineering 10	Materials of Construction	4
Mech. Engineering 11	Hydraulics	3
Mech. Engineering 12	Mechanical Laboratory	3
Mech. Engineering 16	Contracts and Specifications	2
**Military Science 7*	Drill	1
**Military Science 15*	Army Organization and Administration	1
Shop Work 7	Machine Shop	2

SECOND SEMESTER.

Machine Design 4	Mill Engineering Design	4
Mech. Engineering 13	Mechanical Laboratory	2
Mech. Engineering 14	Multiple Expansion Engines (first nine weeks)	2
Mech. Engineering 15	Gas and Hot Air Engines and Refrigerating Machinery (last eight weeks)	2
Mech. Engineering 17	Hydraulic Motors (first nine weeks)	1
Mech. Engineering 18	Concrete-Steel Construction (last eight weeks)	1

*Elective.

		Credit hours.
**Military Science 8*	Drill	1
**Military Science 16*	Army Organization and Administration	1
Political Science 1	Political Economy	3
Shop Work 8	Machine Shop	2
Thesis		2

GENERAL COURSE.

Attendance at Physical Exercise is required of all women students.

Freshman Year.

Elect courses to make at least 16 hrs.

FIRST SEMESTER.

		Credit hours.
Chemistry 1	Inorganic Chemistry	3
**Drawing 1*	Industrial Drawing	2
English 1	English Composition and Rhetoric	3
French 1 or *German 1*	Elementary French / Elementary German	3
**History 1*	History of Europe from 476 to 1492	3
Mathematics 1	Algebra	4
†Mathematics 2	Solid Geometry	2
Military Science 1	Drill	1
Military Science 9	Infantry Drill Regulations	1
Physical Exercise		1
**Shop Work 1*	Wood Work	2

SECOND SEMESTER.

Chemistry 2	Inorganic Chemistry	2
**Drawing 16*	Free Hand or Charcoal Drawing	1½
English 2	English Composition and Rhetoric	3
French 2 or *German 2*	Continuation of French 1 / Continuation of German 1	3
History 2	History of Europe from 1492 to 1715	3

* Elective.

† May be taken as an elective in addition to required work by Freshmen entering without the subject.

		Credit hours.
Mathematics 3	Trigonometry (first ten weeks)..	2½
**Mathematics 4*	Surveying (last seven weeks)...	1½
Military Science 2	Drill	1
Military Science 10	Manual of Guard Duty.....	1
Physical Exercise	.....	1

SOPHOMORE YEAR.

During the Sophomore, Junior and Senior Years students of the General Course will elect at least 16 credit hours each semester, including the required work of the Sophomore Year, according to the group system. Military Science and Drill are required during the Sophomore and Junior Years of all male students; women students are required to take Physical Exercise.

The group system requires that all General Course students shall elect one *major* and two *minor* courses; the *major* to consist of fifteen credit hours in one subject in any of the three groups, in addition to the required work of the Freshman Year; and the *minor* to consist of twelve credit hours in one subject in each of the other two groups, in addition to the required work of the Freshman Year. The thesis must be prepared in the major subject.

GROUP I.

Languages and Literature—English; French; German.

GROUP II.

Mathematics and Sciences—Mathematics; Zoölogy; Drawing; Agriculture; Mechanical Engineering; Electrical Engineering; Chemistry; Botany; Physics.

GROUP III.

History, Social Science and Philosophy—History; Political Science; Philosophy and Pedagogy.

In addition to the elective studies listed below, students of the General Course may pursue studies in the Engineering or Agricultural Courses for which they are qualified, upon the approval of the head of the department concerned.

SOPHOMORE YEAR.

		Credit hours.
FIRST SEMESTER.		
Botany 3 or	General Botany	
Zoölogy 1 or	General Entomology	 3
Zoölogy 6	Invertebrate Zoölogy	

*Elective.

		Credit hours.
**Chemistry 4*	Qualitative Analysis	3
**Drawing 9*	Free Hand Drawing	2
**English 3*	Advanced English Composition and Criticism	3
German 3	German Prose of the Nineteenth Century	3
**History 1* or **History 3*	History of Europe from 476 to 1492 / History of Europe from 1715 to 1815	3
**Mathematics 5*	Analytic Geometry	5
Military Science 3	Drill	1
Military Science 11	Security and Information	1
Physical Exercise		1
**Physics 1*	Mechanics and Heat	3

SECOND SEMESTER.

Botany 4 or *Zoölogy 2* or *Zoölogy 5*	General Botany / Economic Entomology / Advanced Entomology	3
**Drawing 10*	Free Hand Drawing	2
†English 6	English Literature	3
German 4	Scientific German	3
**History 2* or **History 4*	History of Europe from 1492 to 1715 / History of Europe since 1815	3
**Mathematics 6*	Calculus	5
Military Science 4	Drill	1
Military Science 12	Military Map Reading and Sketching	1
Physical Exercise		1
**Physics 2*	Light, Sound and Electricity	3
**Philosophy 1*	Psychology	3
Political Science 1	Political Economy	3

JUNIOR YEAR.

FIRST SEMESTER.

Sixteen exercises required. All elective except Military Science and Drill.

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* Elective.

† Required in Sophomore year or Junior year.

		Credit hours.
Botany 5	Plant Pathology	4
Botany 7	Plant Physiology	3
Chemistry 4	Qualitative Analysis	3
Chemistry 7	Chemistry of Plant Growth	2
Drawing 11	Architectural Drawing	3
English 3	Advanced English Composition	3
French 3	Scientific French	3
History 5	American History to 1783	3
Mathematics 7	Differential Equations	2
Military Science 5	Drill	1
Military Science 13	Field Service Regulations	1
Philosophy 2	History of Educational Theory	3
Physical Exercise		1
Physics 3	Least Squares and Precision of Measurements	2
Physics 4	Physical Laboratory	1
Political Science 2	Laws of Business	3
Spanish 1	Elementary Spanish	3
Zoölogy 3	Vertebrate Anatomy and Physiology	4
Zoölogy 6	Invertebrate Zoölogy	4
Zoölogy 8	Evolution	3

SECOND SEMESTER.

Botany 6	Mycology	3
Botany 8	Plant Histology	3
Chemistry 6	Organic Chemistry	3
Chemistry 8	Organic Chemical Laboratory	3
Drawing 12	Architectural Drawing	3
English 4	English Drama	3
English 6	English Literature	3
French 4	French Prose, History and Travel	3
Geology 1	Mineralogy	2
Geology 2	Elementary Geology	3
History 6	Const. and Political History of U. S., 1783–1837	3
Mathematics 8	Quaternions	2
Military Science 6	Drill	1
Military Science 14	Army Regulations	1
Philosophy 3	Philosophy of Education	3
Philosophy 5	Introduction to Philosophy	3
Physical Exercise		1

		Credit hours.
Physics 5	Physical Laboratory	3
Political Science 4 or *Political Science 5*	Money and Banking / Public Finance	3
Spanish 2	Continuation of Spanish 1	3
Zoölogy 7	General Physiology	3

SENIOR YEAR.

Sixteen exercises required; all elective.

FIRST SEMESTER.

Botany 5 or *Botany 7* or *Botany 9*	Plant Pathology / Plant Physiology / Advanced Botany	3
Drawing 13	Advanced Architectural Drawing	3
Elect. Engineering 61	Industrial Electricity	3
English 5	English Novel	3
French 5	French Prose, Sight Reading	3
Geology 3	Historical Geology	3
German 5	Goethe, His Life and Works	3
History 7	Const. and Political History of U. S. since 1837	3
Meteorology 1	Meteorology	2
Military Science 7	Drill	1
Military Science 15	Army Organization and Administration	1
Philosophy 1	Psychology	3
Philosophy 2	History of Educational Theory	3
Philosophy 4	Educational Theory and Practice	3
Physical Exercise		1
Political Science 2	Laws of Business	3
Political Science 3	American Constitutional Law	3
Spanish 1	Elementary Spanish	3
Thesis		2
Zoölogy 6	Invertebrate Zoölogy	4
Zoölogy 8	Evolution	3
Zoölogy 10	Advanced Zoölogy	3 or 4

SECOND SEMESTER.

Botany 6 or *Botany 8* or *Botany 10*	Mycology / Plant Histology / Advanced Botany	3
Drawing 14	Advanced Architectural Drawing	2

		Credit hours.
English 4	English Drama	3
English 5	English Novel	3
English 7	American Literature	4
French 6	Continuation of French 5	3
Geology 2	Elementary Geology	3
German 6	Goethe (continued)	3
History 4	History of Europe since 1815	3
Mathematics 9	Astronomy	2
Military Science 8	Drill	1
Military Science 16	Army Organization and Administration	1
Philosophy 5	Introduction to Philosophy	3
Physical Exercise		1
Political Science 4 or *Political Science 5*	Money and Banking / Public Finance	3
Spanish 2	Continuation of Spanish 1	3
Thesis		1 or 2
Zoölogy 7	General Physiology	3
Zoölogy 11	Advanced Zoölogy	3 or 4

FOUR YEAR COURSES.

HOURS OF STUDY.

AGRICULTURAL COURSE—FRESHMAN YEAR

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday		Mathematics 1	Chemistry 1	Military Sci. 1	Drawing 1
Tuesday	English 1	French 1 German 1	Mathematics 1	Military Sci. 9	Drawing 1
Wednesday			Chemistry 1	Horticulture 1 (First eight weeks)	Horticulture 1 (First eight weeks) Shop Work 13 (Last nine weeks)
Thursday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	Shop Work 13 (Last nine weeks) Horticulture 1 (First eight weeks)
Friday			Chemistry 1	Military Sci. 1	Horticulture 1 (First eight weeks) Shop Work 13 (Last nine weeks)
Saturday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	

SECOND SEMESTER

Monday	Military Sci. 10		Chemistry 2	Military Sci. 2	Mathematics 4 (Last seven weeks) Shop Work 14 (First ten weeks)
Tuesday	English 2	French 2 German 2		Mathematics 3 (First ten weeks)	Mathematics 4 (Last seven weeks) Shop Work 14 (First ten weeks)
Wednesday	Drawing 4	Drawing 4	Horticulture 2	Mathematics 3 (First ten weeks)	Mathematics 4 (Last seven weeks) Drawing 4 (First ten weeks)
Thursday	English 2	French 2 German 2	Mathematics 3 (First ten weeks)	Mathematics 3 (First ten weeks)	Horticulture 2
Friday	Drawing 4	Drawing 4	Chemistry 2	Military Sci. 2.	Mathematics 4 (Last seven weeks) Drawing 4 (First ten weeks)
Saturday	English 2	French 2 German 2	Mathematics 3 (First ten weeks)	Mathematics 3 (First ten weeks.)	

Mathematics 2. First Semester, hours to be arranged.

AGRICULTURAL COURSE—SOPHOMORE YEAR.

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday		Zoölogy 1	*Botany 3	*Military Sci. 3	Chemistry 4
	Tuesday			Physics 1	German 3	Chemistry 4
	Wednesday	Agriculture 8		Botany 3	Botany 3	Chemistry 4
	Thursday	Zoölogy 1	Zoölogy 1	Physics 1	German 3	Agriculture 8
	Friday	Agriculture 8		*Military Sci. 11	*Military Sci. 3	Zoölogy 1
	Saturday	Botany 3	Botany 3	Physics 1	German 3	
SECOND SEMESTER	Monday	Chemistry 6	Zoölogy 2	*Botany 4	*Military Sci. 4	Forestry 1
	Tuesday		Chemistry 6	Physics 2	German 4	Botany 4
	Wednesday	Forestry 1		Military Sci. 12		Botany 4
	Thursday		Chemistry 6	Physics 2	German 4	
	Friday	Forestry 1		*Zoölogy 2	*Military Sci. 4	Zoölogy 2
	Saturday			Physics 2	German 4	

*These periods are transposed from December 1 to March 31.

AGRICULTURAL COURSE—JUNIOR YEAR

	Day.	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday		Agriculture 9	Horticulture 4	Military Sci. 5	Zoölogy 3 Botany 5
	Tuesday	Chemistry 7	Agriculture 9	Agriculture 9	Agriculture 1	Horticulture 4
	Wednesday	Chemistry 7	Dairying 1	Zoölogy 3 Botany 5		Horticulture 4
	Thursday	Dairying 1	Dairying 1	Dairying 1	Agriculture 1	Zoölogy 3 Botany 5
	Friday	Dairying 1	Dairying 1	Zoölogy 3 Botany 5	Military Sci. 5	Agriculture 1
	Saturday	Dairying 1	Dairying 1	Dairying 1	Military Sci. 13	
SECOND SEMESTER	Monday	Geology 1	Geology 1	Geology 2	Military Sci. 6	Agriculture 2
	Tuesday		Political Sci. 1	*Agriculture 11 *Horticulture 3	Agriculture 2	Botany 6 or 8 *Horticulture 3 *Zoölogy 4 or 5
	Wednesday	*Botany 6 or 8	*Botany 6 or 8	Agriculture 10	Agriculture 2	*Agriculture 11 *Horticulture 3 *Zoölogy 4 or 5
	Thursday		Political Sci. 1	Agriculture 10	Geology 2	Geology 2
	Friday	Geology 1	Geology 1	*Agriculture 11	Military Sci. 6	Agriculture 10
	Saturday		Political Sci. 1	*Botany 6 or 8 *Zoölogy 4	Military Sci. 14	

* Elective.

For hours of courses not scheduled, see instructor.

FIRST SEMESTER

Day	8–9	9–10	10–11	11–12	P. M.
Monday	*Zoölogy 6		*Agriculture 14		*Agriculture 3
Tuesday	Zoölogy 8	*Zoölogy 6	History 5		Agriculture 5 *Agriculture 14
Wednesday		Meteorology 1		*Agriculture 3	*Botany 7 *Agriculture 14
Thursday	Zoölogy 8	*Botany 7	History 5	*Agriculture 14	*Agriculture 3
Friday		Meteorology 1	*Botany 7		*Zoölogy 6
Saturday	Zoölogy 8		History 5		

SECOND SEMESTER

Monday		Agriculture 6 (First nine weeks) Agriculture 7 (Last eight weeks)	History 6	*Agriculture 4	*Botany 8
Tuesday		Agriculture 6 (First nine weeks) Agriculture 7 (Last eight weeks)	English 6	*Agriculture 13	*Agriculture 12
Wednesday		Agriculture 6 (First nine weeks) Agriculture 7 (Last eight weeks)	History 6	*Agriculture 13	*Botany 8
Thursday		Agriculture 6 (First nine weeks) Agriculture 7 (Last eight weeks)	English 6	*Agriculture 4	*Agriculture 13
Friday		*Agriculture 12	History 6		
Saturday		*Botany 8	English 6		

*Elective.

For hours of courses not scheduled see instructor

ENGINEERING COURSES—FRESHMAN YEAR

FIRST DIVISION.

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday		English 1	Chemistry 1	Military Sci. 1	Shop Work 1
Tuesday	German 1	French 1	Military Sci. 9 (Sec. 1)	Mathematics 1	Shop Work 1
Wednesday		English 1	Chemistry 1	Mathematics 1	Drawing 1 Shop Work 1
Thursday	German 1	French 1	Mathematics 1	Mathematics 1	Drawing 1
Friday		English 1	Chemistry 1	Military Sci. 1	Drawing 1
Saturday	German 1	French 1	Mathematics 1	Mathematics 1	

SECOND SEMESTER

Monday	German 2	English 2	Chemistry 2	Military Sci. 2	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Tuesday	Drawing 2	French 2 Drawing 2	Mathematics 3 (First ten weeks)	Military Sci. 10 (1st sec.)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Wednesday	German 2	English 2	Mathematics 3 (First ten weeks)	Military Sci. 10 (2d sec.)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Thursday	Drawing 2	French 2 Drawing 2	Drawing 2 (Last seven weeks) Mathematics 3 (First ten weeks)	Drawing 2 (Last seven weeks) Mathematics 3 (First ten weeks)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Friday	German 2	English 2	Chemistry 2	Military Sci. 2	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Saturday	Drawing 2	French 2 Drawing 2	Drawing 2 (Last seven weeks) Mathematics 3 (First ten weeks)	Drawing 2 (Last seven weeks) Mathematics 3 (First ten weeks)	

Mathematics 2, First Semester, hours to be arranged.

SECOND DIVISION.

FIRST SEMESTER

Day	8–9	9–10	10–11	11–12	P. M.
Monday		Mathematics 1	Chemistry 1	Military Sci. 1	Drawing 1
Tuesday	English 1	French 1 German 1	Mathematics 1	Military Sci. 9 (Sec. 1)	Drawing 1
Wednesday			Chemistry 1	Military Sci. 9 (Sec. 2)	Drawing 1 Shop Work 1
Thursday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	Shop Work 1
Friday			Chemistry 1	Military Sci. 1	Shop Work 1
Saturday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	

SECOND SEMESTER

Monday		Military Sci. 10 (Sec. 1)	Chemistry 2	Military Sci. 2	Drawing 2 (First ten weeks) Mathematics 4 (Last seven weeks)
Tuesday	English 2	French 2 German 2	Drawing 3 (Last seven weeks)	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Drawing 2 (First ten weeks) Mathematics 4 (Last seven weeks)
Wednesday	Drawing 2 (First ten weeks)	Drawing 2 (First ten weeks)	Drawing 2 (First ten weeks)	Mathematics 3 (First ten weeks)	Mathematics 4 (Last seven weeks) Shop Work 2 (First ten weeks)
Thursday	English 2	French 2 German 2	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Mathematics 4 (Last seven weeks) Shop Work 2 (First ten weeks)
Friday	Drawing 2 (First ten weeks)	Drawing 2 (First ten weeks)	Chemistry 2	Military Sci. 2	Mathematics 4 (Last seven weeks) Shop Work 2 (First ten weeks)
Saturday	English 2	French 2 German 2	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	

Mathematics 2, First Semester, hours to be arranged.

CHEMICAL ENGINEERING COURSE—SOPHOMORE YEAR.

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	*Chemistry 5 (First five weeks) *Chemistry 10 (Last twelve weeks)	*Military Sci. 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
	Tuesday	Mathematics 5		Physics 1	German 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
	Wednesday	Mathematics 5	Chemistry 5 Chemistry 10	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
	Thursday	Mathematics 5	Mathematics 5	Physics 1	German 3	Drawing 7
	Friday	Mathematics 5		*Military Sci. 11	*Military Sci. 3	Drawing 7
	Saturday	Mathematics 5	Mathematics 5	Physics 1	German 3	
SECOND SEMESTER	Monday	Chemistry 6			*Military Sci. 4	Chemistry 11
	Tuesday	Mathematics 6	Chemistry 6	Physics 2	German 4	
	Wednesday	Mathematics 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Thursday	Mathematics 6	Chemistry 6	Physics 2	German 4	
	Friday	Mathematics 6	Mathematics 6	*Military Sci. 12	Military Sci. 4	Chemistry 11
	Saturday	Mathematics 6	Mathematics 6	Physics 2	German 4	

* These periods are transposed from December 1 to March 31.

CHEMICAL ENGINEERING COURSE—JUNIOR YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday		Chemistry 19	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Military Sci. 5	Physics 6
	Tuesday	Chemistry 7	Chemistry 12	Chemistry 21	Chemistry 12	Physics 6
	Wednesday	Chemistry 7	Chemistry 19	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)		Physics 6
	Thursday	Chemistry 12	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Chemistry 12	Chemistry 12	Chemistry 12
	Friday	Chemistry 12	Chemistry 12	Chemistry 12	Military Sci. 5	Chemistry 12
	Saturday		Chemistry 21	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Military Sci. 13	
SECOND SEMESTER	Monday	Geology 1	Geology 1	Mech. Eng. 5	Military Sci. 6	Chemistry 13
	Tuesday	Chemistry 13	Chemistry 13	Chemistry 20	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 13
	Wednesday	Chemistry 13	Mech. Eng. 5	Chemistry 13	Chemistry 13	Chemistry 8
	Thursday		Mech. Eng 5	Chemistry 20	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 8
	Friday	Geology 1	Geology 1		Military Sci. 6	Chemistry 8
	Saturday	Chemistry 12	Mech. Eng. 5		Chemistry 14 Chemistry 15 Chemistry 22 Military Sci. 14	

CHEMICAL ENGINEERING COURSE—SENIOR YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday	Chemistry 23 EE 51	Chemistry 23		~~Elect. Eng. 51~~	Chemistry 23
	Tuesday	Chemistry 23	Chemistry 23	Chemistry 21	Mech. Eng. 7	Chemistry 23
	Wednesday	Shop Work 15	Shop Work 15	Shop Work 15	Shop Work 15	Elect. Eng. 51
	Thursday	Chemistry 23	Chemistry 23	Chemistry 23	Mech. Eng. 7	Chemistry 23
	Friday	Ele	Chemistry 23	Chemistry 23	Mech. Eng. 7	Chemistry 23
	Saturday		Chemistry 21			
SECOND SEMESTER	Monday	Chemistry 24	Chemistry 24	Chemistry 24	Elect Eng. 52	Chemistry 24
	Tuesday	Political Sci. 1		English 6	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
	Wednesday	Chemistry 24	Chemistry 24	Chemistry 24	Elect. Eng. 52	Chemistry 24
	Thursday	Political Sci. 1		English 6	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
	Friday	Chemistry 24	Chemistry 24	Chemistry 24	Elect. Eng. 52	Chemistry 24
	Saturday	Political Sci. 1		English 6	Chemistry 14 Chemistry 15 Chemistry 22	

Chem. 16. Hours to be arranged.

FIRST SEMESTER

Day	8–9	9–10	10–11	11–12	P. M.
Monday	Mech. Eng. 1		*	*Military Sci. 3	Chemistry 4 Shop Work 3
Tuesday	Mathematics 5		Physics 1	German 3	Chemistry 4 Shop Work 3
Wednesday	Mathematics 5	Mech. Eng. 1	Military Sci. 11		Drawing 5 (Div. 1)(1st 7 wks.) Chemistry 4
Thursday	Mathematics 5	Mathematics 5	Physics 1	German 3	Drawing 5 (Div. 1)(1st 7 wks.) Drawing 6 (Div. 2)
Friday	Mathematics 5		*Mech. Eng. 1	*Military Sci. 3.	Drawing 5 (Div. 1)(1st 7 wks.) Drawing 6 (Div. 2)
Saturday	Mathematics 5	Mathematics 5	Physics 1	German 3	

SECOND SEMESTER

Monday	Mech. Eng. 2 (First ten weeks) Mech. Eng. 3 (Last seven weeks)		*	*Military Sci. 4	Shop Work 4
Tuesday	Mathematics 6		Physics 2	German 4	Shop Work 4
Wednesday	Mathematics 6	Mech. Eng. 2 (First ten weeks) Mech. Eng. 3 (Last seven weeks)	Military Sci. 12		Drawing 8 Shop Work 4
Thursday	Mathematics 6		Physics 2	German 4	Drawing 8
Friday	Mathematics 6	Mathematics 6	*Mech. Eng. 2 (First ten weeks) Mech. Eng. 3 (Last seven weeks)	*Military Sci. 4	Drawing 8
Saturday	Mathematics 6	Mathematics 6	Physics 2	German 4	

*These periods are transposed from December 1 to March 31.

ELECTRICAL ENGINEERING COURSE—JUNIOR YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday	Elect. Eng. 3	Elect. Eng. 1	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Military Sci. 5	Physics 3 Physics 4
	Tuesday	Machine Design 1	Machine Design 1	Machine Design 1	Mech. Eng. 7	Physics 3 Physics 4
	Wednesday	Elect. Eng. 3	Elect. Eng. 3	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Mech. Eng. 7	Physics 3 Physics 4
	Thursday	Machine Design 1	Machine Design 1	Machine Design 1	Mech. Eng. 7	
	Friday	Elect. Eng. 1	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Elect. Eng. 3	Military Sci. 5	
	Saturday	Elect. Eng. 3	Mech. Eng. 7	Mech. Eng. 4 (First ten weeks Mech. Eng. 6 (Last seven weeks)	Military Sci. 13	
SECOND SEMESTER	Monday	Elect. Eng. 2	Elect. Eng. 4	Mech. Eng. 5	Military Sci. 6	
	Tuesday	Machine Design 2	Machine Design 2	Machine Design 2	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	
	Wednesday	Elect. Eng. 2	Mech. Eng. 5	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Elect. Eng. 4	Physics 5
	Thursday	Elect. Eng. 2	Mech. Eng. 5		Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5
	Friday	Machine Design 2	Machine Design 2	Elect. Eng. 4	Military Sci. 6	Physics 5
	Saturday	Mech. Eng. 5	Elect. Eng. 4	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Military Sci. 14	

ELECTRICAL ENGINEERING COURSE—SENIOR YEAR

FIRST SEMESTER

Day	8–9	9–10	10–11	11–12	P. M.
Monday	Mech. Eng. 10	Mech. Eng. 11	Elect. Eng. 5	Military Sci. 7	Mech. Eng. 12
Tuesday	Mech. Eng. 10	Elect. Eng. 5	Elect. Eng. 20 Elect. Eng. 21 Elect. Eng. 22		Elect. Eng. 31
Wednesday	Mech. Eng. 10	Mech. Eng. 11	Elect. Eng. 20 Elect. Eng. 21 Elect. Eng. 22	Elect. Eng. 5	Mech. Eng. 12
Thursday	Mech. Eng. 10	Mech. Eng. 11	Elect. Eng. 20 Elect. Eng. 21 Elect. Eng. 22	Elect. Eng. 5	Mech. Eng. 12
Friday		Elect. Eng. 5		Military Sci. 7	Elect. Eng. 31
Saturday		Elect. Eng. 5			

SECOND SEMESTER

Monday	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)		Elect. Eng. 6 (First ten weeks) Elect. Eng. 7 (Last seven weeks)	Military Sci. 8	Elect. Eng. 32
Tuesday	Political Sci. 1	Elect. Eng. 6 (First ten weeks) Elect. Eng. 7 (Last seven weeks)	Elect.Eng. 33	Elect. Eng. 33	Elect. Eng. 32
Wednesday		Elect. Eng. 23 (First nine weeks) Elect. Eng. 24 (Last eight weeks)	Elect. Eng. 6 (First ten weeks) Elect. Eng. 7 (Last seven weeks)	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Mech. Eng. 13
Thursday	Political Sci. 1	Elect. Eng. 6 (First ten weeks) Elect. Eng. 7 (Last seven weeks)	Elect. Eng. 33	Elect. Eng. 33	Mech. Eng. 13
Friday	Elect. Eng. 6 (First ten weeks) Elect. Eng. 7 (Last seven weeks)	Elect. Eng. 23 (First nine weeks) Elect. Eng. 24 (Last eight weeks)	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Military Sci. 8	Elect. Eng. 33
Saturday	Political Sci. 1	Elect. Eng. 23 (First nine weeks) Elect. Eng. 24 (Last eight weeks)	Elect. Eng. 33	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	

MECHANICAL ENGINEERING COURSE—JUNIOR YEAR

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday		Elect. Eng. 41	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Military Sci. 5	Physics 3 Physics 4
Tuesday	Machine Design 1	Machine Design 1	Machine Design 1	Mech. Eng. 7	Physics 3 Physics 4
Wednesday	Elect. Eng. 41		Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Mech. Eng. 7	Physics 3 Physics 4
Thursday	Machine Design 1	Machine Design 1	Machine Design 1	Mech. Eng. 7	Shop Work 5
Friday	Elect. Eng. 41	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)		Military Sci. 5	Shop Work 5
Saturday	Elect. Eng. 41	Mech. Eng. 7	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Military Sci. 13	

SECOND SEMESTER

Monday.....		Elect. Eng. 42 (First eight weeks) Elect. Eng. 43 (Last nine weeks)	Mech. Eng. 5	Military Sci. 6	Physics 5
Tuesday.....	Shop Work 6	Shop Work 6	Shop Work 6	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5
Wednesday	Elect. Eng. 43 (First eight weeks) Elect. Eng. 42 (Last nine weeks)	Mech. Eng. 5	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)		Physics 5
Thursday.....	Elect. Eng. 42 (First eight weeks) Elect. Eng. 42 (Last nine weeks)	Mech. Eng. 5		Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	
Friday.....	Shop Work 6	Shop Work 6	Shop Work 6	Military Sci. 6	
Saturday.....	Mech. Eng. 5	Elect. Eng. 42 (First eight weeks) Elect. Eng. 43 (Last nine weeks)	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Military Sci. 14	

MECHANICAL ENGINEERING COURSE—SENIOR YEAR

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday	Mech. Eng. 10	Mech. Eng. 11	Mech. Eng. 16		Mech. Eng. 12
Tuesday	Mech. Eng. 10	Shop Work 7	Shop Work 7	Shop Work 7	Machine Design 3
Wednesday	Machine Design 3	Mech. Eng. 11	Mech. Eng. 10	Elect. Eng. 44 (First eight weeks) Elect. Eng. 45 (Last nine weeks)	Mech. Eng. 12
Thursday	Mech. Eng. 10	Mech. Eng. 11	Machine Design 3	Elect. Eng. 44 (First eight weeks) Elect. Eng. 45 (Last nine weeks)	Mech. Eng. 12
Friday	Machine Design 3	Machine Design 3	Machine Design 3	Mech. Eng. 16	Machine Design 3
Saturday	Shop Work 7	Shop Work 7	Shop Work 7	Elect. Eng. 44 (First eight weeks) Elect. Eng. 45 (Last nine weeks)	

SECOND SEMESTER

Monday	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Shop Work 8	Shop Work 8		Thesis
Tuesday	Political Sci. 1	Machine Design 4	Machine Design 4	Mech. Eng. 17 (First nine weeks) Mech. Eng. 18 (Last eight weeks)	Thesis
Wednesday	Machine Design 4	Machine Design 4	Machine Design 4	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Mech. Eng. 13
Thursday	Political Sci. 1	Machine Design 4	Machine Design 4	Mech. Eng. 17 (First nine weeks) Mech. Eng. 18 (Last eight weeks)	Mech. Eng. 13
Friday	Shop Work 8	Shop Work 8	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)		Machine Design 4
Saturday	Political Sci. 1			Mech. Eng. 14 (First nine weeks) Mech. Eng 15 (Last eight weeks)	

GENERAL COURSE—FRESHMAN YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday		Mathematics 1	Chemistry 1	Military Sci. 1	Drawing 1
	Tuesday	English 1	French 1 German 1	Mathematics 1	Military Sci. 9	Drawing 1
	Wednesday		History 1 or History 3	Chemistry 1		Shop Work 1
	Thursday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	History 1 or History 3
	Friday		History 1 or History 3	Chemistry 1	Military Sci. 1	Shop Work 1
	Saturday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	
SECOND SEMESTER	Monday	Military Sci. 10		* Chemistry 2	* Military Sci. 2	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)
	Tuesday	English 2	French 2 German 2		Mathematics 3 (First ten weeks)	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)
	Wednesday		History 2 or History 4		Mathematics 3 (First ten weeks)	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)
	Thursday	English 2	French 2 German 2	Mathematics 3 (First ten weeks)	Mathematics 3 (First ten weeks)	History 2 or History 4
	Friday		History 2 or History 4	* Chemistry 2	* Military Sci. 2	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)
	Saturday	English 2	French 2 German 2	Mathematics 3) (First ten weeks	Mathematics 3 (First ten weeks)	

Mathematics 2, First Semester, hours to be arranged.

* These periods are transposed from December 1 to March 31.

GENERAL COURSE—SOPHOMORE YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday..	Zoölogy 6	Zoölogy 1	*Botany 3	*Military Sci. 3	Chemistry 4
	Tuesday.....	Mathematics 5	Zoölogy 6	Philosophy 1 Physics 1	German 3	Chemistry 4
	Wednesday	Mathematics 5	History 1 History 3	Botany 3	Botany 3	Chemistry 4
	Thursday.....	Mathematics 5	Zoölogy 1	Philosophy 1 Physics 1	German 3	History 1 History 3
	Friday.....	Mathematics 5	History 1, or History 3	*Military Sci. 11	*Military Sci. 3	Zoölogy 1 Zoölogy 6
	Saturday	Mathematics 5 Botany 3	Mathematics 5 Botany 3	Philosophy 1 Physics 1	German 3	
SECOND SEMESTER	Monday.....	Chemistry 6	Zoölogy 2	*Botany 4	*Military Sci. 4	
	Tuesday.....	Mathematics 6	Political Sci. 1	English 6 Physics 2	German 4	Botany 4 Zoölogy 5
	Wednesday	Mathematics 6	History 2 History 4	Military Sci. 12		Botany 4 Zoölogy 5
	Thursday.....	Mathematics 6	Political Sci. 1	English 6 Physics 2	German 4	History 2 History 4
	Friday.....	Mathematics 6	History 2 History 4	*Zoölogy 2	*Military Sci. 4	Zoölogy 2
	Saturday	Mathematics 6	Political Sci. 1	English 6 Physics 2	German 4	

* These periods are transposed from December 1 to March 31.
Drawing 10 and 19, hours to be arranged.

GENERAL COURSE—JUNIOR YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday	Zoölogy 6	French 3	English 3	Military Sci. 5	Botany 5 Chemistry 4 Spanish 1 Zoölogy 3
	Tuesday	Chemistry 7 Zoölogy 8	Political Sci. 2 Zoölogy 6	History 5	Philosophy 2 Philosophy 4	Chemistry 4 Spanish 1
	Wednesday	Chemistry 7	French 3	Botany 5 Zoölogy 3	English 3	Chemistry 4 Spanish 1
	Thursday	Zoölogy 8	Political Sci. 2	History 5	Philosophy 2 Philosophy 4	Botany 5 Zoölogy 3 Zoölogy 6
	Friday		French 3	Botany 5 Zoölogy 3	Military Sci. 5	English 3
	Saturday	Zoölogy 8	Political Sci. 2	History 5	Military Sci. 13 Philosophy 2 Philosophy 4	
SECOND SEMESTER	Monday	Chemistry 6 Geology 1	French 4	Geology 2 History 6	Military Sci. 6	Spanish 2
	Tuesday		Chemistry 6 Philosophy 3 Philosophy 5	English 6	Political Sci. 4 Political Sci. 5	English 4 Spanish 2
	Wednesday		French 4	History 6	Geology 2	Spanish 2
	Thursday		Chemistry 6 Philosophy 3 Philosophy 5	English 6	Political Sci. 4 Political Sci. 5	English 4 Geology 2
	Friday	Geology 1	French 4	History 6	Military Sci. 6	English 4
	Saturday		Philosophy 3 Philosophy 5	English 6	Political Sci. 4 Political Sci. 5 Military Sci. 14	

For hours of courses not scheduled, see instructor.

GENERAL COURSE—SENIOR YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday			French 5	Political Sci. 3	History 7 Spanish 1
	Tuesday	Zoölogy 8	Political Sci. 2	French 9 Philosophy 1	Philosophy 2 Philosophy 4	Spanish 1
	Wednesday	German 5	Meteorology 1	French 5	Political Sci. 3	History 7 Spanish 1
	Thursday	Zoölogy 8	Political Sci. 2	French 9 German 9 Philosophy 1	Philosophy 2 Philosophy 4	
	Friday	German 5	Meteorology 1	French 5	Political Sci. 3	History 7
	Saturday	Zoölogy 8	Political Sci. 2	German 9 Philosophy 1	Philosophy 2 Philosophy 4	
SECOND SEMESTER	Monday		Mathematics 9	French 6 Geology 2	English 7	Spanish 2
	Tuesday		Philosophy 3 Philosophy 5	English 6 French 10	Political Sci. 4 Political Sci. 5	Spanish 2
	Wednesday	German 6	Mathematics 9	French 6	English 7	Spanish 2
	Thursday		Philosophy 3 Philosophy 5	German 10 English 6 French 10	Geology 2 Political Sci. 4 Political Sci. 5	Geology 2
	Friday	German 6		French 6	English 7	English 7
	Saturday		Philosophy 3 Philosophy 5	English 6 German 10	Political Sci. 4 Political Sci. 5	

For hours of courses not scheduled, see instructor.

TWO YEAR COURSE IN AGRICULTURE.

This course was established by the state legislature in 1895, and provides an opportunity for those students to secure a training for their life work who do not have the time, money or preparation to take a four-year college course.

The course is especially arranged and suited for the young, bright boys of the farm, who expect to make a business of some line of agricultural or horticultural work. Although it is open to students who have had no previous training on the farm, the entrance of such is not encouraged because of their lack of practical experience. By independent work and close application, however, inexperienced students sometimes pass the course with credit.

Three new and important changes in the course have been made this year. The first is the shortening of the school year from thirty-five to thirty weeks. This change is made for the purpose of having the students complete their year's work about the last of April so as to be able to go home for the spring work on the farm or to accept salaried positions for the summer. It also permits of more than four months' time for those students who are dependent upon their own resources to earn money for the following year. The second change is the separation of the two and four-year classes all the way through the course. This separation has not heretofore been made in most of the agricultural and horticultural subjects, but with an increased teaching force in these two departments for the coming year, it is made complete. The making of the classes separate and distinct makes it possible to plan and give the work of the two-year course in a manner best

suited to the needs of its students. In short the course has been made just as practical as possible. The third change is the division of the year into two terms instead of three. The first term will be eighteen weeks in length and the second twelve.

The work of the first year is largely preparatory, being a study of the sciences underlying agriculture, together with some elementary agricultural and horticultural work. The second year contains optional studies so that it is possible for students to specialize in animal industry, dairying, forestry or greenhouse work. Ten hours per week on the average are spent in practical work on the farm, in the barn, greenhouses or shops.

ADMISSION.

The course is open to those who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States. Applicants, unless over eighteen years of age, who do not bring high school or other satisfactory certificates to show their proficiency in these subjects, will be given an entrance examination on Tuesday afternoon and Wednesday morning of the opening week of school. Applicants who are over eighteen years of age will be admitted without examination.

OPENING.

The course for the year will open Wednesday, September 17, 1908, and close Wednesday, May 5, 1909. A Christmas vacation of two weeks and a spring vacation of one week will be given.

EXPENSES.

The expenses of the course will vary with the tastes and frugality of the students and the kind of accommodations which they secure. The total average expense for the year is not far from $250. Many students by working for their

board or room rent, or by doing various kinds of work about the college or village, are able to go through the year with a cash outlay not exceeding $150.

CERTIFICATES.

No degree is given at the end of the course, but a certificate of graduation is issued upon the completion of it or its equivalent.

DESCRIPTION OF STUDIES.

AGRONOMY.

Agriculture 21. Elementary Agriculture.

Text-book and recitations upon the elementary principles of Agriculture, including a study of the soil, the plant and the animal, and the relations of each to the other; also a brief study of the different breeds of livestock, their breeding and feeding. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

Agriculture 22. Farm Equipment and Farm Crops.

This course is similar to Agriculture 1, although less detailed. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

Agriculture 23. Soils and Soil Physics.

This course is similar to Agriculture 2, but involves less mathematics and physics. For Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

Agriculture 24. Manures and Fertilizers.

Text-book and recitations upon the constituents of farm manures and chemical fertilizers, care and application of manures, the mixture of fertilizers and the modifications required by different soils and crops. For Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

ANIMAL INDUSTRY.

Agriculture 25. Breeds of Live Stock.

Similar to Agriculture 8. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

Agriculture 26. Sheep Raising.

Lectures and recitations upon the breeds of sheep; their adaptability to this section; their care and management; fitting for the shows and feeding for market purposes; growing of hot house lambs. Also practical exercises in judging the various breeds. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

Agriculture 27. Feeds and Feeding.

Similar to Agriculture 10. For Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

Agriculture 28. Animal Breeding.

Similar to Agriculture 9. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

Agriculture 29. Veterinary.

Similar to Agriculture 11. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

Agriculture 30. Poultry.

Similar to Agriculture 12. Elective for Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

BOTANY.

ASSOC. PROF. BROOKS.

1. Elements of Botany.

A general view of the life processes and structure of plants, followed by the study in detail of a few type forms. Recitations

and laboratory work. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

2. Plant Diseases.

A study of the more important fungous diseases and their prevention. Lectures, recitations and laboratory work.

Open to students who have completed Course 1.

Three exercises per week. 2nd S.

CHEMISTRY.

PROF. MORSE.

9. Elementary Applications.

An elementary course, with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc. For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

DAIRYING.

ASSOC. PROF. RASMUSSEN.

7. Milk and Milk Testing.

Lectures and recitations on the secretion, composition and properties of milk, the Babcock test and lactometer. Comparative study of different systems of creaming and different factors influencing the efficiency of the hand separator. For Two Year Agricultural Students, First Year.

Three exercises per week. 2nd S.

8. Butter Making.

This includes pasteurization, commercial starters, cream ripening, churning, marketing and scoring butter. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

9. Technology of Milk.

Same as Course 3. Elective for Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

DRAWING.

15. Two Year Agricultural Students, Second Year.

One exercise per week. 1st S.

ENGLISH.

8. Grammar and Elementary Composition.

For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

9. Grammar and Composition.

This is a continuation of Course 8. For Two Year Agricultural Students, First Year.

Open only to students who have completed Course 8.

Three exercises per week. 2nd S.

FORESTRY.

6. Farm Forestry.

Method of reproduction, seed collecting, thinning, determination of heights, contents and increment of forest trees. For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

7. Arboriculture and Forestry.

Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

HORTICULTURE.

11. Plant Growth and Greenhouse.

Combined lecture, demonstration and laboratory course in plant growth and greenhouse management. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

12. Fruit Growing.

This course embraces a study of commercial orcharding; each fruit being studied with reference to planting, cultivating, prun-

ing, fertilizing, picking, packing, storing and marketing. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

13. Vegetable Gardening.

A study of the commercial methods of vegetable growing. Special attention is given to the home garden. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

14. Home Decoration.

A study of ornamental trees, shrubs and flowers; their culture, proper arrangement and decorative value, with special reference to home surroundings. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

MATHEMATICS.

MR. EASTMAN.

10. Arithmetic and Bookkeeping.

For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

MILITARY SCIENCE AND TACTICS.

LIEUT. HUNT.

1. Military Drill.

For Two Year Agricultural Students, First Year.

Two exercises per week. 1st S.

2. Military Drill.

For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

3. Military Drill.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 1st S.

4. Military Drill.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

9. Infantry Drill Regulations.

Practical instruction and lectures. For Two Year Agricultural Students, First Year.

One exercise per week. 1st S.

10. Manual of Guard Duty and Small Arms Firing Regulations.

For Two Year Agricultural Students, First Year.

One exercise per week. 2nd S.

17. Lectures on Advance Guards, Outposts, etc.

For Two Year Agricultural Students, Second Year.

One exercise per week. 1st S.

18. Lectures on Advance Guards, Outposts, etc.

Continuation of Course 17. For Two Year Agricultural Students, Second Year.

One exercise per week. 2nd S.

PHYSICS.

ASST. PROF. ADAMS.

41. Elementary Physics.

For Two Year Agricultural Students, Second Year.

Four exercises per week. 1st S.

SHOP WORK.

9. Wood Work. Mr. Ingham.

For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

10. Iron Work. Mr. Brown.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

ZOOLOGY.

13. Vertebrate Anatomy and Physiology.

The anatomy and physiology of the higher vertebrates based upon that of man and with special reference to domestic animals. Recitations and laboratory dissections and experiments. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

14. Elementary Entomology.

The structure, habits and classification of insects, with special consideration of injurious pests and means of controlling them. For Two Year Agricultural Students, First Year.

Three exercises per week. 2nd S.

TWO YEAR COURSE IN AGRICULTURE.

HOURS OF STUDY.

COURSES OF STUDY AND SCHEDULE OF HOURS.

First Year.

FIRST SEMESTER.

		Credit hours.
Agriculture 21	Elementary Agriculture	3
Botany 1	Elements of Botany	3
English 8	Grammar and Elementary Composition	3
Horticulture 13	Vegetable Gardening	3
Mathematics 10	Mathematics and Bookkeeping	3
Military Science 1	Drill	1
Military Science 9	Infantry Drill Regulations	1
Zoölogy 13	Vertebrate Anatomy and Physiology	3

SECOND SEMESTER.

Botany 2	Plant Diseases	3
Chemistry 9	Elementary Applications	2
Dairying 7	Milk and Milk Testing	3
English 9	Grammar and Composition	3
Forestry 6	Farm Forestry	2
Military Science 2	Drill	1
Military Science 10	Manual of Guard Duty	1
Shop Work 9	Wood Work	2
Zoölogy 14	Economic Entomology	4

Second Year.

FIRST SEMESTER.

Agriculture 22	Farm Equipment and Farm Crops	3
Agriculture 25	Breeds of Livestock	3
**Agriculture 26*	Sheep Raising	3
**Dairying 8*	Butter Making	3
Drawing 15		1
Horticulture 12	Fruit Growing	3
**Horticulture 11*	Plant Growth and Greenhouse	3

*Elective. Elect any one or two.

		Credit hours.
Military Science 3	Drill	1
Military Science 17	Advance Guards, Outposts, etc...	1
Physics 41	Elementary Physics	4

SECOND SEMESTER.

Agriculture 23	Soils and Soil Physics	3
Agriculture 24	Manures and Fertilizers	3
Agriculture 27	Feeds and Feeding	3
**Agriculture 28*	Animal Breeding	3
**Agriculture 29*	Veterinary Science	3
**Agriculture 30*	Poultry	2
**Dairying 9*	Technology of Milk	2
**Forestry 7*	Arboriculture and Forestry	3
**Horticulture 14*	Home Decoration	3
Military Science 4	Drill	1
Military Science 18	Advance Guards, Outposts, etc...	1
Shop Work 10	Iron Work	2

*Elective. Elect any two.

TWO YEAR COURSE IN AGRICULTURE—FIRST YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday	English 8	Agriculture 21	Mathematics 10	Military Sci. 1	Horticulture 11
	Tuesday		Military Sci. 9	Horticulture 11	Botany 1	Zoölogy 13
	Wednesday	English 8	Agriculture 21	Mathematics 10	Zoölogy 13	Botany 1
	Thursday		Horticulture 11		Zoölogy 13	
	Friday	English 8	Agriculture 21	Mathematics 10	Military Sci. 1	Botany 1
	Saturday					
SECOND SEMESTER	Monday	English 9	Chemistry 9	Forestry 6	Military Sci. 2	Zoölogy 14
	Tuesday	Shop 9	Shop 9	Shop 9	Shop 9	Botany 2
	Wednesday	English 9	Chemistry 9		Zoölogy 14	Forestry 6
	Thursday	Dairying 7	Dairying 7	Dairying 7	Botany 2	Zoölogy 14
	Friday	English 9	Military Sci. 10	Dairying 7	Military Sci. 2	Botany 2
	Saturday	Dairying 7	Dairying 7	Dairying 7	Zoölogy 14	

TWO YEAR COURSE IN AGRICULTURE—SECOND YEAR

	Day	8–9	9–10	10–11	11–12	1.30–4
FIRST SEMESTER	Monday	*Agriculture 26 *Horticulture 13	Horticulture 12	*Dairying 8	Military Sci. 3	Agriculture 25
	Tuesday	*Dairying 8	*Dairying 8	Agriculture 22	Physics 41	*Horticulture 13
	Wednesday	*Horticulture 13	Horticulture 12	Agriculture 25	Physics 41	Agriculture 22
	Thursday	*Agriculture 26	*Agriculture 26	Agriculture 22	Physics 41	Drawing 15
	Friday	Military Sci. 17	*Agriculture 26	Agriculture 25	Military Sci. 3	Horticulture 12
	Saturday	*Dairying 8	*Dairying 8	*Dairying 8	Physics 41	
SECOND SEMESTER	Monday	Agriculture 24	*Agriculture 29	Agriculture 23	Military Sci. 4	*Forestry 7 *Agriculture 30
	Tuesday	Agriculture 24	*Agriculture 28	Agriculture 23		*Dairying 9
	Wednesday	Agriculture 24	*Horticulture 14 *Agriculture 29	Military Sci. 18	*Forestry 7	Agriculture 23
	Thursday	Shop 10	Shop 10	Shop 10	Shop 10	Agriculture 27
	Friday	Agriculture 27	*Horticulture 14 *Agriculture 28		Military Sci. 4	*Horticulture 14 *Agriculture 29
	Saturday	Agriculture 27	*Dairying 9 *Agriculture 28	*Dairying 9	*Forestry 7 *Agriculture 30	

*Elective.

TEN WEEK COURSE IN DAIRYING OR DAIRY SCHOOL.

The thirteenth Annual Dairy School of the New Hampshire College will open Tuesday, January 7, and continue in session until Friday, March 14. Students should present themselves for registration at Thompson Hall the first day of the session. Lecture and laboratory work will begin the following day.

The object of this school is to furnish a broad and substantial foundation for those who would become successful creamery managers or dairy farmers. It offers a short route to a successful career that must otherwise require years of experience to attain. The subjects taught have a practical bearing on the every-day affairs connected with the various branches of the dairy industry.

DAIRY BUILDING AND EQUIPMENT.

The dairy building is a wooden structure of one and one-half stories with basement. It is divided into rooms for testing, separating and churning. There is also an engine room and an office for the dairy instructor.

All available space is occupied by the various forms of separators, milk testers, milk coolers, churns, butter-workers, etc. Dairy students are taught to use all the latest and best appliances obtainable. Steam power is supplied by the large boilers at the power house. In addition to the product of the college herd, milk and cream are received from about thirty farms in Durham and vicinity. Through this arrangement the college furnishes plenty of milk for practice work, and provides for a complete and practical training in creamery and dairy management. Representative animals of the Jersey, Guernsey, Ayrshire, Holstein and

Shorthorn breeds are owned by the college, and are used for acquainting the student with the different types of dairy cattle.

ADMISSION.

The school is open to women and to men in advanced years as well as to young men. No entrance examinations are required. To be most benefited by the school, students should have had some practical experience on a farm or in a creamery.

EXPENSES.

A tuition fee of five dollars is payable on registering at the beginning of the term; other expenses, including books, room and board for ten weeks, will amount to approximately sixty dollars.

NUMBER OF STUDENTS LIMITED.

Owing to the limited space for class work in the dairy building, the number of students must necessarily be limited to the men who first make application for admission.

CERTIFICATES.

Students completing the required work of the dairy school, and passing satisfactory examinations, will be given certificates.

THE WINTER COURSE IN AGRICULTURE.

This course was established at the college several years ago and has proved of great value to those who have taken advantage of the opportunities afforded by it.

There are a large number of young men located on the farms of our state who are so situated that it is impossible for them to be absent from their homes during the spring, summer and fall months, but who desire information and training in the principles of agriculture. Besides the young men and boys there are many mature men who are past the usual school age but are desirous of becoming familiar with the most recent agricultural studies and practices.

The winter course is designated to give such men an opportunity to study the results of the latest investigations in agriculture, and to learn how to make a practical application of the fundamental principles to the work on the farm.

Among the subjects which will be taught there are those of which every farmer should have definite knowledge, and in the application of which he should have thorough training. Practical work in the barn, greenhouses, forest and laboratories will go hand in hand with the work in the class room.

There is no longer any question concerning the value of scientific training for those who are engaged in farming. The rapid development of agriculture and the keen competition in all lines of production have made an education a necessity for the young man on the farm. It is the hope of the officers and instructors of the Winter Course in Agriculture that it will open an additional avenue in which the college may prove useful to the farmers of the state.

The course will open Tuesday, January 7, and continue until Friday, March 14. Applicants should register at Thompson Hall on the opening day. Regular exercises will begin on the day following.

ADMISSION.

No entrance examination is required for this course, but applicants should possess a good common school education and should be of mature years.

EXPENSES.

The expenses of the course may be estimated as follows:

Tuition fee	$5.00
Room and board, 10 weeks at $5.00 . .	50.00
Books, stationery and incidentals . .	10.00
Total	$65.00

CERTIFICATES.

Students completing the course and passing satisfactory examinations will be given certificates stating the amount of work done.

TEN WEEK COURSES IN DAIRYING AND AGRICULTURE.

DESCRIPTION OF STUDIES.

Agriculture 41. Barn Work.

This will consist of ten two-hour periods in which the student will receive practice in mixing rations, grooming cattle, polishing horns, trimming sheep and in otherwise fitting and preparing animals for the show ring.

Agriculture 42. Breeds and Breeding.

Lectures and recitations upon the origin, history, distribution, breeding, characteristics, adaptability and standard of excellence of the pedigreed breeds of dairy cattle, with special reference to the selection of breeds and individual animals for the dairy herd.

This subject will be studied four hours per week for the first five weeks. The practical work will consist of judging and scoring representatives of the various breeds of dairy cattle and in tracing pedigrees of animals in the herd books of the different breeds.

Agriculture 43. Chemistry of Milk and Butter.

The subject is taken up in a course of 8 lectures, illustrated by experiments and specimens, and includes the properties and separation of the different constituents of milk, fat, casein, albumen, sugar, etc., the composition of butter and butter-fat and the properties and effects of preservatives.

Agriculture 44. Diseases of Cattle.

This course will consist of eight lectures and recitations upon the anatomy and physiology of the cow, with special reference to the digestive, reproductive and milk-producing organs. The common diseases, their causes and the methods of treatment will be discussed.

Agriculture 45. Feeds and Feeding.

This subject will be treated in twenty lectures and recitations upon the composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders; the making and feeding of ensilage, and the grinding, steaming and cooking of food. A careful study of the different feeds and grains upon the market and their value in a dairy-feeding ration will be made. Practice will also be given in computing and compounding rations for the dairy cow.

Agriculture 46. Manures and Fertilizers.

The course will consist of lectures and recitations upon the constituents of farm manures and chemical fertilizers; care of manures; different methods of application, and the modifications required by different soils and crops.

Agriculture 47. Poultry Raising.

This course consists of lectures and recitations upon the different classes and varieties of poultry; the location and building of poultry houses; the shipping of poultry and eggs and the methods of preventing disease. Practice will be given in scoring some of the leading varieties.

Agriculture 48. Sheep Raising.

In the study of sheep, particular attention is given to the subject of care and management, the adaptation of breeds to climate, the raising of early lambs, and the different grades, uses and value of wool. The possibilities of this industry in New Hampshire should merit a careful study of it.

Agriculture 49. Soils and Crops.

This subject will take up the origin, classification, distribution and the physical and chemical properties of soils; drainage and cultivation. The culture and use of the different varieties of grains, grasses and forage crops will be considered.

Botany 40. Plant Diseases and Spraying.

The more common and important fungous diseases and insect enemies will be studied by means of lectures and recitations. The time, methods, materials, cost and advantages of spraying will be discussed.

Dairying 40. Butter Making.

Lectures and recitations on the different systems of creaming milk and a comparison of the efficiency of different cream separators under varying conditions; cream ripening, churning, washing, marketing and scoring of butter.

Dairying 41. Dairy Bacteriology.

Lectures, recitations and demonstrations, covering the more important facts in the relation of bacteria to dairying, with instruction and practice in pasteurizing milk and cream for market or butter making and in preparing and using cultures in ripening cream.

Dairying 42. Dairy Laboratory.

The equipment in the dairy building is such that the laboratory work can be made applicable both to farm and factory conditions. The student will have an opportunity to study construction and efficiency, and operation of the various machines used in the handling of milk and making of butter.

The use of the Babcock test in apportioning the money value of milk is now regulated by state law, and the importance of the test in the successful management of the dairy herd has created a demand for more complete and practical training. The details of the test will be studied carefully, and the student will practise testing milk, cream, skim-milk and buttermilk until fully competent to perform the work for himself or for others. For Dairy Students.

Dairying 43. Dairy Laboratory.

The dairy laboratory will be open on Saturday mornings for students wishing to receive instruction and practice in the operation and care of cream separators, pasteurizers, and Babcock testers. This is only a brief course but is intended to give the student a working knowledge of the more common creamery and dairy devices. For Agricultural Students.

Dairying 44. Milk and Milk Testing.

This course will consist of a study of secretion, physical and chemical properties of milk; the production and preparation of sanitary certified and modified milk, the various methods of sampling and testing milk and cream, and the detection of adulterants and preservatives.

Forestry 40. Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops and climate; establishment and management of plantations of forest trees.

Horticulture 40. Fruit and Vegetable Growing.

The culture, classification and identification, storing and marketing of our leading commercial fruits and vegetables are taken up for study. The location, care and management of orchards will also receive attention.

Horticulture 41. Greenhouse Management.

This course aims to familiarize the student with modern methods of greenhouse work. Soils, varieties, culture, marketing and enemies of greenhouse plants will be studied. Students will receive practice in propagating, potting, watering, ventilating, etc.

Mechanical Engineering 40. Boilers and Engines.

Lectures will be given on the construction, operation and care of boilers, motors, steam and gasoline engines. The lectures will be followed by practical demonstrations and practice in the management of the various motive powers. Instruction and practice will also be given in pipe cutting and fitting, and other work incidental to the management of a steam plant.

Zoölogy 40. Insects Affecting Animals.

This subject will be covered in four lectures on the horn-fly, warble-fly, cattle lice, and similar pests, with especial reference to their life histories and methods of combating them.

COURSES OF STUDY.

		Credit Hours.	No. of Weeks.
Agriculture 41	Barn Work	1	10
Agriculture 42	Breeds and Breeding..	2	5
Agriculture 43	Chemistry of Milk and Butter	1	4
Agriculture 44	Diseases of Cattle....	1	4
Agriculture 45	Feeds and Feeding....	2	5
Agriculture 46	Manures and Fertilizers	1½	5
Agriculture 47	Poultry	2	10
Agriculture 48	Sheep Raising	1	5
Agriculture 49	Soils and Crops.....	2	5
Botany 40	Plant Diseases, etc...	2	5
Dairying 40	Butter Making	1½	5
Dairying 41	Dairy Bacteriology ...	1½	5
Dairying 42	Dairy Laboratory (Dairy Students) ..	5	10
Dairying 43	Dairy Laboratory (Agricultural Students)	1	10
Dairying 44	Milk and Milk Testing	2	10
Forestry 40	Forestry	3	10
Horticulture 40	Fruit and Vegetable Growing	1½	5
Horticulture 41	Greenhouse Management	3	10
Mech. Engineering 40	Boilers and Engines...	1	10
Zoölogy 40	Insects Affecting Animals	1½	2

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the national government. The appropriations for the current year aggregate $24,000.

The acts of Congress provide—

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaption and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective state and territories."

COMMENCEMENT, 1907.

On Commencement Day, June 5, 1907, the following degrees were conferred:

BACHELORS OF SCIENCE.

AGRICULTURE.

Batchelor, L. D., West Upton, Mass.
Littlefield, R. A., Portsmouth.
Noyes, B. C., Lisbon.
Powers, J. G., Concord.

CHEMISTRY.

Dodge, C. A., New Boston.

ELECTRICAL ENGINEERING.

Broggini, A., Concord.
Randall, F. G., Portsmouth.
Woodward, A. J., Lancaster.

GENERAL COURSE.

Townsend, Ellice S., Lebanon.
Watson, Lucia W., Durham.
Dickey, H. H., Manchester.

MECHANICAL ENGINEERING.

Berry, P. R., Alton.
Ingham, H. E., Nashua.
Lane, F. D., Manchester.

MASTER OF SCIENCE.

Clark, J. D., Nashua.

CERTIFICATES.

Batchelder, D. R., Wilton.
Blood, A. E., East Sullivan.
Dean, A. L., Taunton, Mass.
Frink, S., Newington.
Hickey, W. P., Bow.
Kampe, F. H. C., East Alstead.
Parker, L. A., Keene.
Sanborn, L. E., Ashland.
Tucker, E. E., Durham.
Wright, C. S., Portsmouth.

PRIZE RECORD FOR 1906.

BAILEY PRIZE—$10.

Given by Dr. C. H. Bailey of the Class of '79, and E. A. Bailey of the Class of '85.

Carl Austin Dodge, New Boston.

ERSKINE MASON MEMORIAL PRIZE.

Frank Wiggin Randall, Portsmouth.

SENIOR STANDING HIGHEST IN THE MILITARY DEPARTMENT.

Andrew Broggini, Concord.

WINNERS OF INDIVIDUAL PRIZE DRILL.

Gold Medal.

Leonard S. Morrison, '10, Concord.

Silver Medal.

Harry Storrs Townsend, '09, Lebanon.

HONORABLE MENTION.

Raymond Adelbert Knapp, '10, Gloucester, Mass.

PRIZE SWORD—EXCELLENCE IN DRILL.

Merritt Chase Huse, '08, Concord.

HONORABLE MENTION.

Arthur Milliken Batchelder, '08, Suncook.

COLOR COMPANY—FALL TERM.

Company B.

Valentine Smith Scholarships are held by—

W. W. Kirkpatrick, '08.
Wm. S. Campbell, '09.
E. D. French, '10.
E. B. Jennings, '11.

ROSTER OF BATTALION.

For 1907–'08.

COMMANDANT.

First Lieut. William E. Hunt, Eighth U. S. Infantry.

CADET OFFICERS.

Major J. T. Croghan.
First Lieut. and Adjt. J. W. Tucker.
First Lieut. and Q. M. W. W. Evans.
Sergt. Maj. C. B. Wilkins.
Q. M. Sergt. H. S. Townsend.
Color Sergt. E. R. Fellows.
Drum Major. W. F. Langelier.

Company A.	Company B.	Company C.
Capt. A. M. Batchelder.	Capt. M. C. Huse.	Capt. H. D. Walker.
1st Lt. L. A. Carlisle.	1st Lt. C. D. Kennedy.	1st Lt. M. M. Corey.
2nd Lt. H. H. Wilkins.	2nd Lt. L. L. Smalley.	2nd Lt. C. S. Wendell.

First Sergeants.

M. D. Merrill.	H. E. Wilder.	L. A. Pratt.

Sergeants.

R. C. Emery.	H. S. Pike.	H. E. Batchelder.
F. O. Chase.	C. Chase.	F. E. McKone.
L. S. Morrison.	A. P. Woods.	E. D. Sanborn.
E. M. Stevens.	C. S. Wright.	A. E. Blake.

Corporals.

R. A. Neal.	H. A. Trow.	J. M. Leonard.
O. F. Bryant.	H. C. Wyman.	H. R. Day.
C. E. Lawrence.	H. C. Read.	W. D. Kidder.
S. R. Fisher.	C. H. Reynolds.	E. B. Edgerly.

Musicians.

H. T. Littlefield.	W. O. Parmenter.	D. Boynton.

Band.

2nd Lt. J. P. Trickey.	Corporal C. L. Wood.
Sergeant F. Clough.	Corporal O. D. Goodwin.
Sergeant S. F. Hill.	Corporal P. F. Ellsworth.
Sergeant M. G. Buss.	Corporal J. E. Parker.

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